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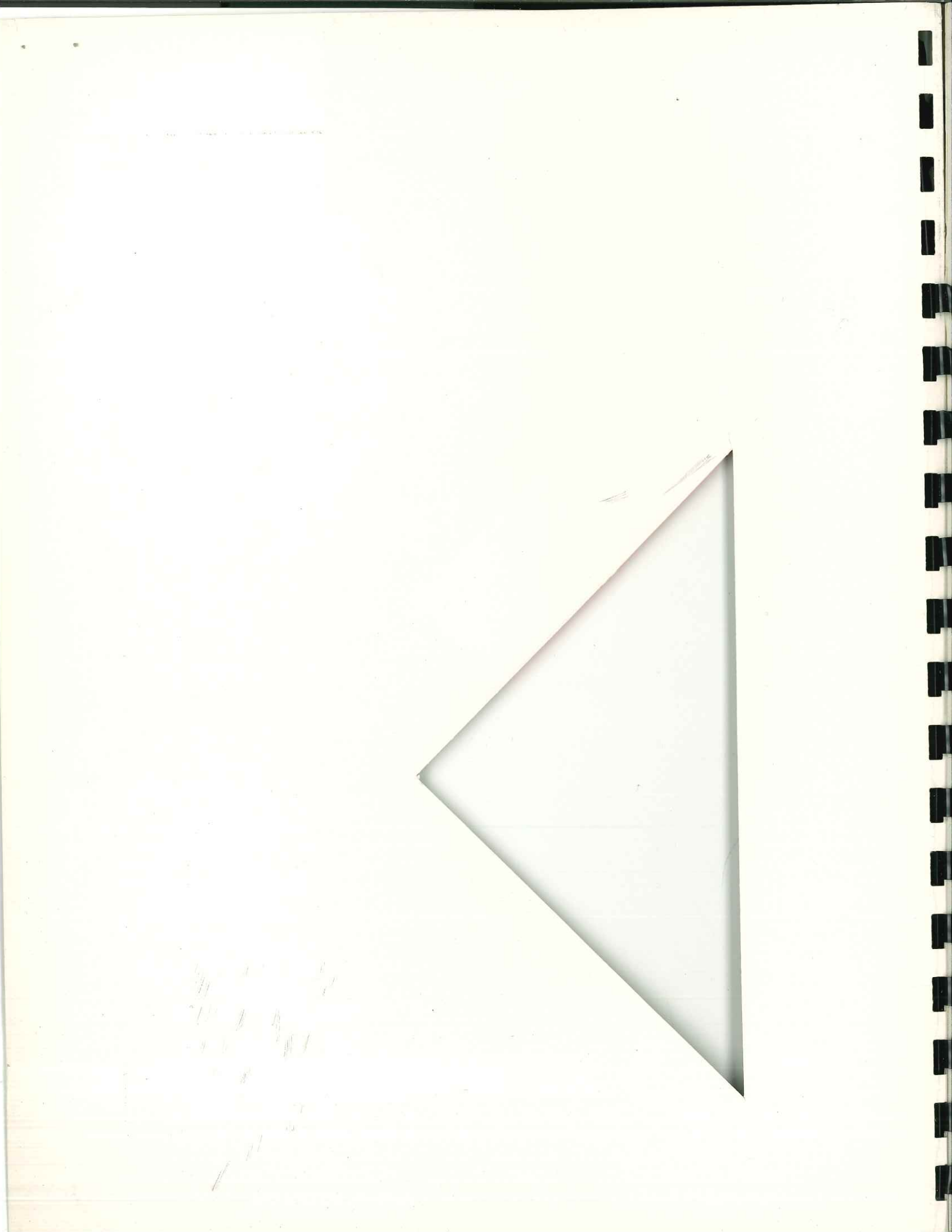
BRUNING

Copyflex

430

**INSTRUCTION
and
PARTS
MANUAL**

CHARLES BRUNING COMPANY • INC



BRUNING

Copyflex

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**INSTRUCTION
and
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MANUAL**

Issued 3-63

BRUNING

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Copyflex

430

**INSTRUCTION
SECTION**

This manual is presented as an introduction to initial machine use. Consult your Bruning Man to avail yourself of the fullest possibilities, uses, and optional equipment for your Copyflex machine.

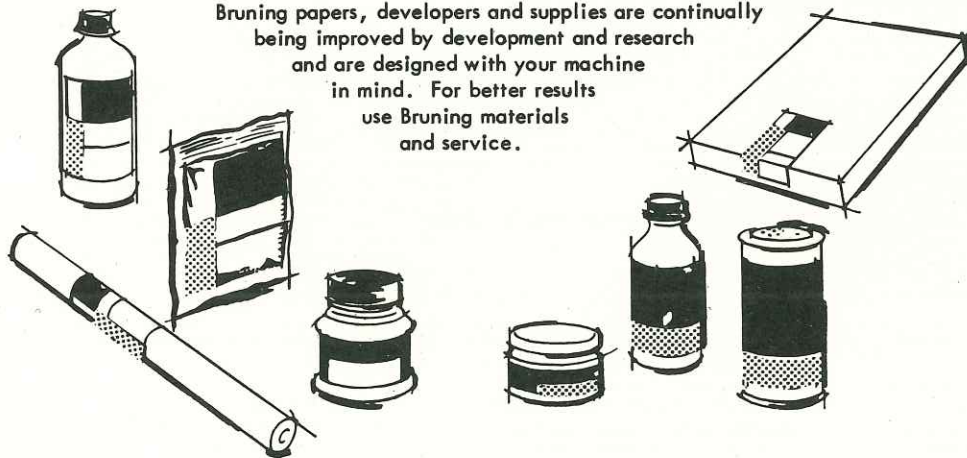
GUARANTEE

The Charles Bruning Company guarantees the parts of this equipment against defective material and workmanship for a period of six months after installation.

The lamp is covered by a separate guarantee, providing the Lamp Guarantee Card is properly filled out and mailed immediately following installation. Lamp breakage is not covered.

The Charles Bruning Company reserves the right to modify specifications or design without incurring the obligation to change machines already sold.

Bruning papers, developers and supplies are continually being improved by development and research and are designed with your machine in mind. For better results use Bruning materials and service.



Printed in U.S.A.

STANDARD FEATURES

- Printing Width 42 inches. Takes sheets and roll stock 42 inches wide by any reasonable length.
- Printing Lamp 3000 Watt mercury arc lamp with constant wattage transformer for consistent light intensity.
- Speed and Drive Up to 30 lineal feet per minute provided by variable speed D.C. motor, powered by selenium rectifier for trouble-free operation.
- Feed Hand fed for maximum tracing protection. Two rods below feedboard accommodate roll stock.
- Tracing Return Tracing and print are returned to operator after passing through exposure section. Print is then fed manually into the developer section.
- Print Delivery Selective front or rear delivery. Front print stacker adjustable to stack prints up to 24" x 42". Optional rear print tray accommodates print sizes up to 32" x 42".
- Developer System Pressure-roller developer synchronized with exposure drive speed uses fume-free Copyflex developer powder ready to mix with water.

INSTALLATION DATA

- Electrical Supply 230 Volt, 60 cycle alternating current, single phase, 40 amps max. 208 Volt, 50 cycle alternating current, single phase or 208 Volt, 60 cycle alternating current, single phase (optional at extra cost).
- Room Lighting Operates anywhere, no darkroom or subdued lights required.
- Venting or Plumbing None required.
- Weight 1395 pounds, approximately
- Mounting Facilities Four heavy-duty casters for easy mobility with four leveling screws and pads for precise machine installation.
- Dimensions Overall height: 64". Overall width: 65".
Width with side doors open: 122". Overall depth: 51".
-

INSTALLATION

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PRE-INSTALLATION INFORMATION

Normally your Bruning man will be on hand to install your Copyflex Model 430; however if you must make the installation without his help, careful attention to the information in this section will help you avoid mistakes.

Unpacking instructions, when required, are attached to the outside of the shipping crate for the Model 430. These instructions will guide you in uncrating the machine safely and in replacing any parts removed for shipping purposes. Instructions for other parts to be assembled at the installation site are included in this section.

Installing the machine involves installation of the developer rolls and the printing lamp, leveling the machine, and connection to the electrical supply. None of the tasks are difficult if you will read through all the installation instructions first and then re-read the individual instructions for each task as you do it.

CHOOSING THE LOCATION

The Bruning Copyflex process permits a wide choice of installation sites for your Copyflex Model 430. Because the process is odorless, no fume vents are necessary. No plumbing connections are required for the developer system, nor is

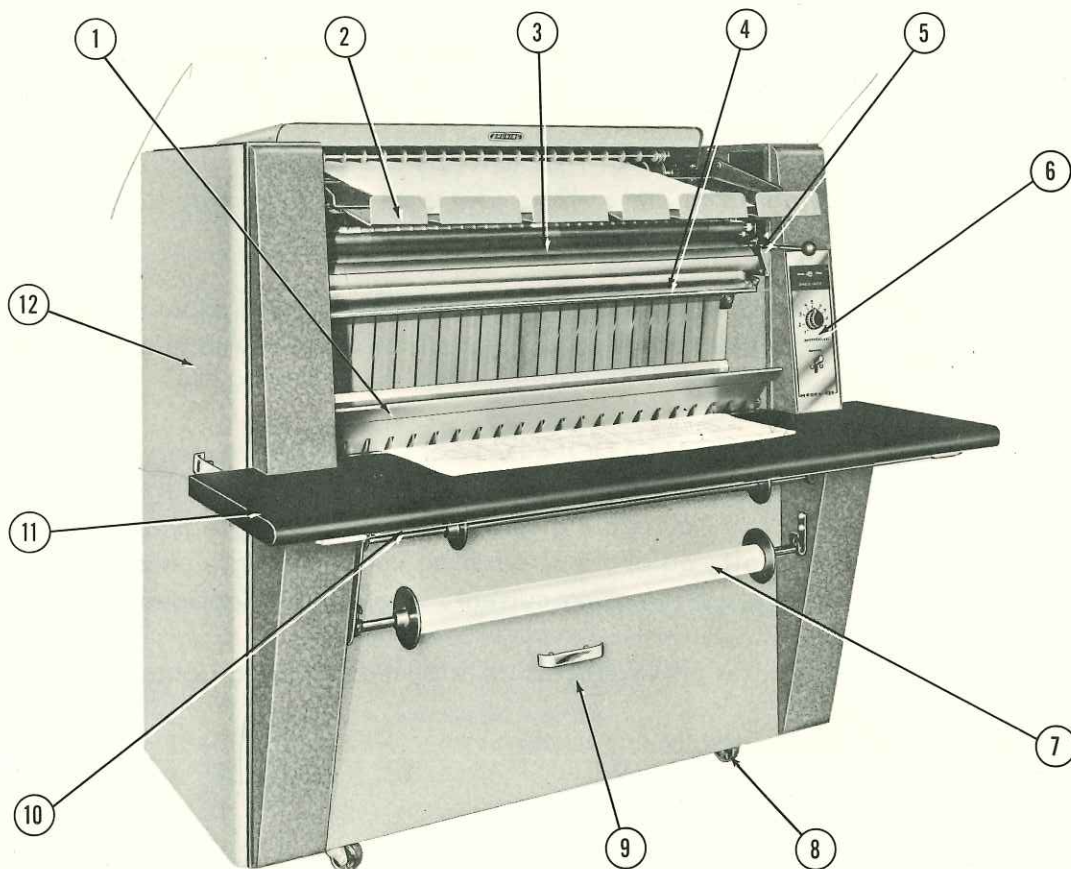


Figure 1. Copyflex Model 430 - Overall View

- | | |
|-------------------------|------------------------|
| 1. Tracing Stacker Tray | 7. Roll Paper Rod |
| 2. Print Stacker Tray | 8. Caster |
| 3. Developer Section | 9. Front Panel |
| 4. Feed-Up Plate | 10. Paper Cutter Table |
| 5. Nite Latch | 11. Feedboard |
| 6. Right Control Panel | 12. Left Side Door |

it necessary to provide a darkroom or subdued room lighting. You can locate the machine in almost any clean area where there is sufficient floor space for efficient operation and where the required electrical supply is available.

Check the physical data listed in the specifications section for dimensions, weight, and electrical requirements. Be sure you have the proper electrical supply available near the chosen site. If you are not certain of the electrical requirements specified on your order, open the right side door of the machine and examine the nameplate mounted on the fuse box near the lower right corner. The complete power supply data is printed on the plate.

ORIENTATION

In the instructions to follow you will need a working knowledge of the names used to identify certain assemblies and parts of the machine. Figure 1 will help you become familiar with such names as "feed-board", "developer section", "control panel" and other names of the major areas of the machine. Spend a few minutes to study the illustration before reading the rest of the manual. Figure 2 illustrates the tools and accessories shipped with your machine. Some of the items are used during installation. Others are maintenance materials and spare parts.

NOTE . . . Directional words such as right and left in part names mean left-hand and right-hand sides as you stand facing the machine in the operator's position.

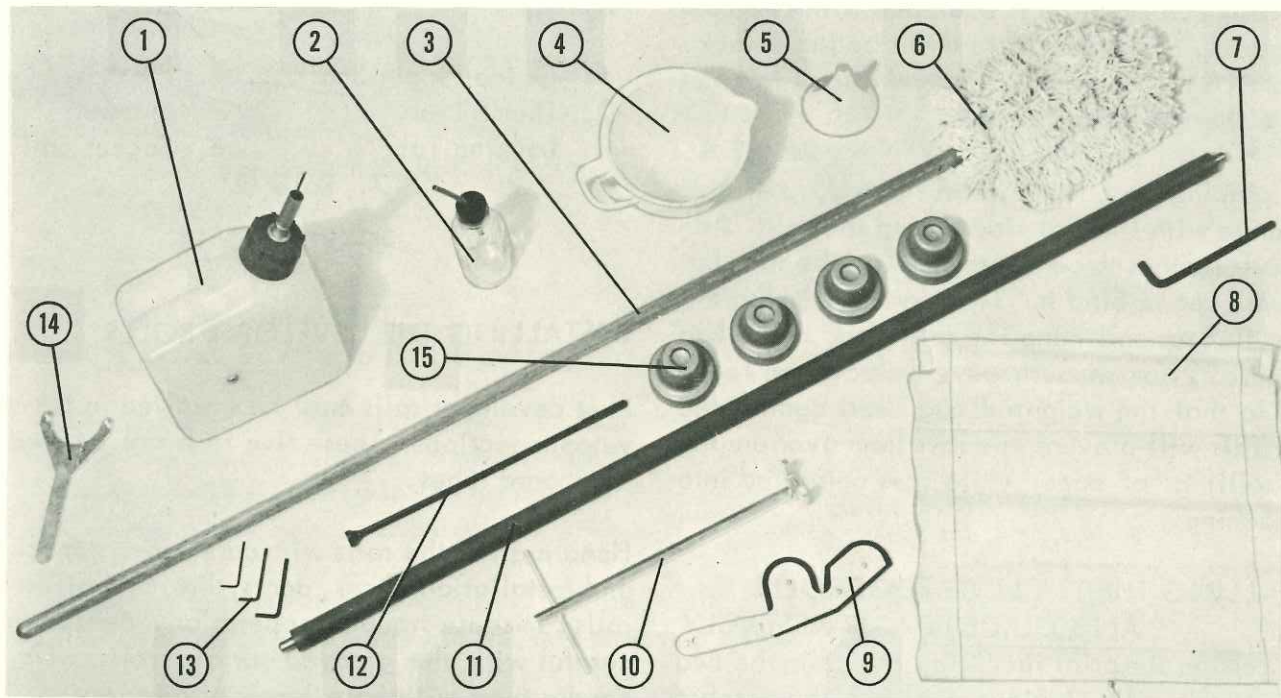


Figure 2. Model 430 Tools and Accessories

- | | |
|-------------------------------|--|
| 1. Developer Bottle and Valve | 9. Developer Trough Squeegee |
| 2. Utility Bottle w/stopper | 10. Idler Adjusting Wrench |
| 3. Cylinder Duster Handle | 11. Spare Floating Roll |
| 4. Measuring Cup | 12. Stirring Rod |
| 5. Funnel | 13. Allen Wrench Set |
| 6. Duster Head | 14. Spanner Wrench (For major maintenance only.) |
| 7. Allen Wrench | 15. Jack Base |
| 8. Roll Stock Brake Bag | |

INSTALLATION

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INSTALLATION INFORMATION

As a number of parts are shipped separately from the machine, the installation instructions that follow will facilitate their correct assembly.

INSTALLING THE FEEDBOARD

Carefully align the feedboard on the brackets at the front of the machine so that the tapped holes in the feedboard line up with the bracket holes. Using the lag bolts in the canvas bag (tied to the handle of the developer section), secure the feedboard to the brackets.

Install the front machine panel, using the oven head screws found in the canvas bag.

ROLL STOCK ATTACHMENT

Your Copyflex machine is equipped with two rods (7, Figure 1) to accommodate sensitized roll stock. To install a roll raise the right end of one rod and remove the flange at that end.

After placing the paper roll on the rod, re-install the flange with the flat side toward the roll. Adjust both flanges to center the roll on the rod, but take care not to bind it. Tighten the thumbscrews in the flanges and hang the roll stock brake bag (8, Figure 2) from the screw-eye beneath the feedboard so that the weighted bag bears against the roll. This will prevent the roll from overrunning and "spilling" of paper while it is being fed into the machine.

INSTALLING THE TRAILING EDGE ROLLS AND GUIDE FINGER ASSEMBLY

After raising the print receiving tray, slip the two trailing edge rolls (7, Figure 2A) into the notches at the rear of the developer brackets. Loosen the thumb nut (2) of the lock bracket (5), located on the right side of the developer section. Swing the lock (3) out so it points at you. Then, slip the hollowed left end of the guide finger assembly (1) onto the ball-shaped stud (6), while placing the pin (4) on the right end into the lock bracket. Pivot the lock until it is parallel to the guide finger shaft and tighten the thumb screw.

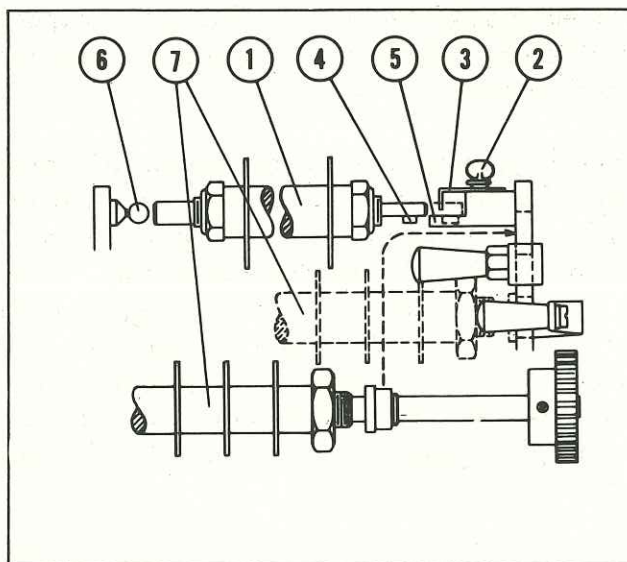


Figure 2A. Trailing Edge Guide Fingers and Rolls

- | | |
|-----------------------|----------------|
| 1. Guide Finger Shaft | 4. Pin |
| 2. Thumb Nut | 5. Bracket |
| 3. Locking Tab | 6. Socket Ball |
| 7. Rolls (2) | |

INSTALLING THE DEVELOPER ROLLS

Five developer rolls must be installed in the developer section. These five rolls are packed in cardboard tubes.

Handle all of the rolls with care during unpacking and installation; nicks, dents, dirt, and oil on the rolls can cause trouble in operation. Be especially careful with the grooved-surface rolls. Do not handle them with bare hands or oily rags. The oil will prevent the rolls from picking up and distributing the developer liquid.

To install the rolls in the slotted developer roll brackets, follow the procedure below and refer to figures 3, 4, and 5.

- a. Lift the front print tray (1, figure 3) and swing it back to the raised position as shown.

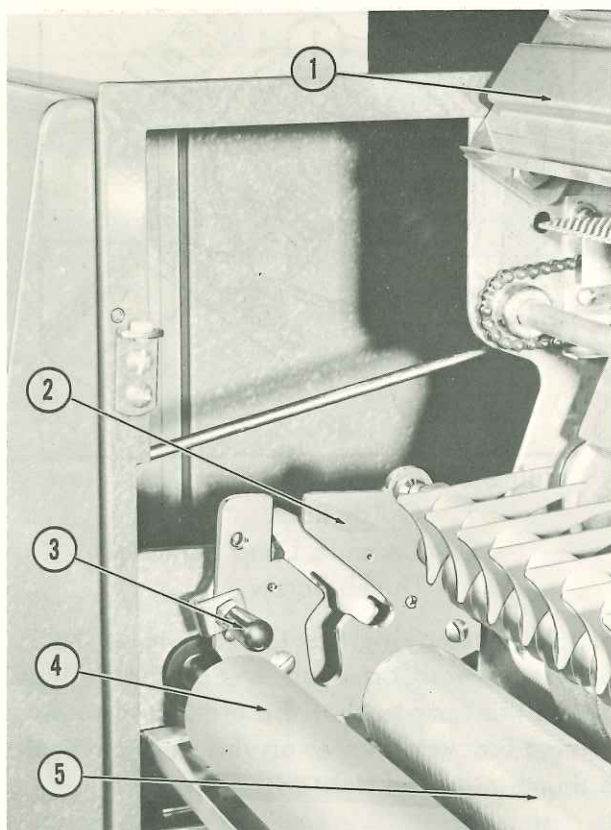


Figure 3. Developer Rolls Installation, View 1

1. Front Print Tray
2. Developer Roll Bracket
3. Nite Latch
4. Plain Developer Roll (Fixed)
5. Grooved Developer Roll (Fixed)

b. Make sure both nite latches (one at each side) are in the down position as shown in figure 3. If the latch (3) is locked in the up position, pull out on the black handle and move it down.

c. Install the grooved applicator roll (1, figure 4) in the slotted bracket. Guide the roll into the slots so the flange on the nylon bearing is on the inside of the brackets.

d. Install either one of the two identical pressure rolls (2, figure 4).

e. Install the other pressure roll on top of the first pressure roll as shown at (2), figure 5.

f. Install the stepped weight roll with the square bearing as shown at (1), figure 5.

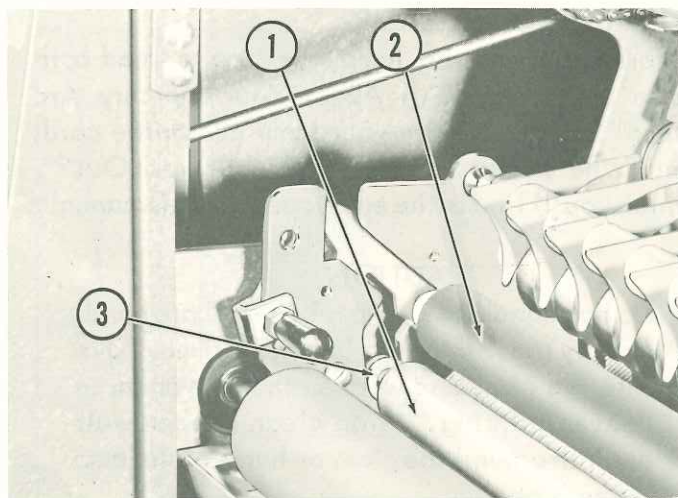


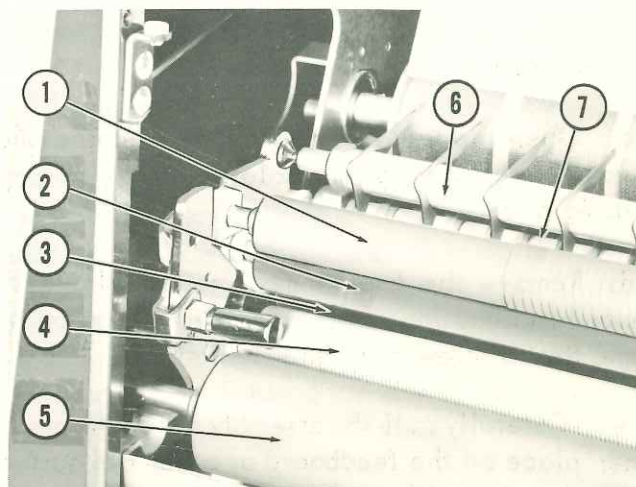
Figure 4. Developer Rolls Installation, View 2

1. Grooved Applicator with Bearing
2. Pressure Roll
3. Nylon Bearing

g. The last roll to be installed is the bearing-less grooved roll. Install it on top of rolls 4 and 5, Figure 5. This is an application roll and simply rests on the other two rolls. It does not fit into the slots in the developer brackets.

Figure 5. Developer Rolls Installation, View 3

1. Stepped Weight Roll
2. Pressure Roll (Top)
3. Pressure Roll (Bottom)
4. Grooved Applicator Roll
5. Plain Developer Roll (Fixed)
6. Guide Finger Shaft
7. Trailing Edge Shaft



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INSTALLING THE LAMP

Before installing the lamp, be sure to read both lamp brochures, "All About Your Mercury Arc Lamp", enclosed with your lamp guarantee card, and "Where Were You When the Light Went Out?", which you'll find in the envelope with this manual.

CAUTION

Do not handle the lamp tube with bare hands or dirty rags. Fingerprints and dirt may bake into the glass and weaken the tube or cause uneven printing. Wrap clean paper towels or cloth around the glass or handle the lamp by ends only.

The printing lamp is a separate carton within the crate and must be installed in the lamp duct assembly before the machine can be operated. The lamp duct must be removed from the machine to install the lamp, after which the entire assembly must be re-installed.

The duct assembly is equipped with a stop on the left side of the machine. This stop automatically centers the duct assembly in the glass cylinder.

If desired this stop may be transferred to the right side of the machine, permitting the removal of the duct from that side.

Install the lamp as follows:

- a. Open the right side door and remove the four wing nuts holding the lamp housing cover.
- b. After setting the cover aside, loosen the thumb screw (3, Figure 6).
- c. Open the left side door of the machine and remove the four wing nuts holding the outer lamp housing cover.
- d. Remove the two thumb screws holding the inner lamp housing cover in position. Loosen the same thumb screw as on the right side.
- e. Carefully pull the assembly out of the machine; place on the feedboard or other flat surface with the mirror-like reflector facing up.

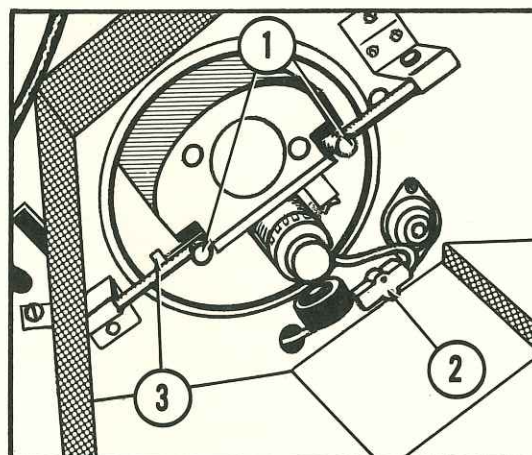


Figure 6. Right Side Lamp Duct View

1. Guide Rods
2. Ceramic Lamp Terminals
3. Thumb Screw

f. After removing the thumb nuts on the lamp brackets located on each end of the reflector, position the lamp so that the elongated cutouts in the lamp brackets center on the screws. Replace the thumb nuts and tighten.

g. Wipe all fingerprints and foreign substances off the surfaces of the lamp and reflector.

h. Install the lamp assembly (1, Figure 6) by carefully sliding the assembly along the guide rods, making certain the duct flanges engage the guide rods. Otherwise the assembly may drop on the cylinder and damage it.

i. Slide the assembly as far as it will go. It will automatically be stopped when the lamp centers in the glass cylinder. Tighten thumb screws in Figure 6 at both ends of the duct assembly.

j. Fasten the wire lamp leads by pushing the metal ends into the ceramic lamp terminals (2, Figure 6). Replace the lamp housing cover on the right side of the machine to complete installation procedure on this side of the machine.

k. Replace the inner lamp housing cover on the left side of the machine and the outer lamp housing covers on both sides of the machine.

REPLACING THE LAMP

Follow the lamp installation instructions, plus making sure the machine is off and the lamp cool to the touch.

CAUTION

Remove the lamp leads at each end before attempting to remove the lamp duct assembly.

**SETTING AND LEVELING THE MACHINE**

Roll the machine into the final position it will occupy in the floor plan and align the casters in a front-to-rear direction. Recheck the machine position with the layout to be sure operating areas and aisle dimensions are correct before you level the machine. Once you are satisfied that you have room enough to open the side doors and to operate efficiently, level the machine as follows: level the machine as follows:

- a. Place a leveling base (2, figure 7) under the jack screw (1) at each of the four corners of the machine. (The bases are packed with the tools and accessories. See 15, figure 2.)
- b. Open both side doors and turn the jack screws clockwise until they rest on the bases (See figure 7 for a view of the jacks on the right side).
- c. Check the machine in both directions (right-to-left and front-to-rear) to see if it is level.
- d. Raise or lower each corner with the screw jacks until the machine is level.

NOTE

The developer trough may be filled with clean water (32 oz.) and the depth at each end measured to serve as a level gauge. Be sure the developer valve handle (inside left side door) is in the closed position.

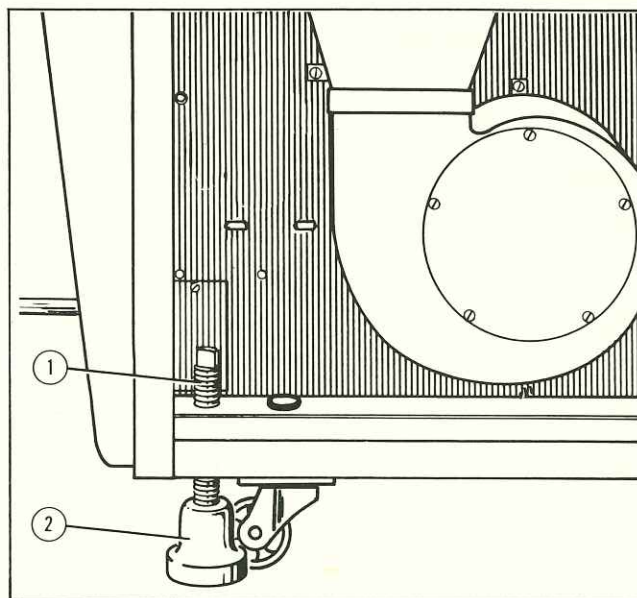


Figure 7. Jack Screw and Leveling Base
1. Jack Screw 2. Leveling Base

MAKING THE ELECTRICAL CONNECTION

Once the machine has been located and leveled, have a qualified man connect the machine to the electrical supply lines in accordance with the electrical codes which apply in your area. The machine frame must be grounded, preferably by means of a third conductor attached directly to the machine frame, to protect the operator in the event of a short circuit.

CAUTION

In making the ground connection be sure the conductor makes contact with the metal frame and the connection is not insulated by paint. Make a continuity check with an ohmmeter after grounding the machine.

In wiring the branch circuit to supply the machine, the ambient temperature of the area must be considered, and a wire large enough to carry the full current at the ambient temperature must be used. If the circuit runs along steam pipes or other heat sources make sure the appropriate conductor is selected. See Table I for a guide to de-rating various conductor types and sizes at high temperatures.

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Table I. Temperature vs. Conductor Current Capacity (Amperes)

Degrees Centigrade	➤		40	45	50	55	60
Degrees Fahrenheit	➤		104	113	122	131	140
RUBBER	Correction factor		.82	.71	.58	.41	
types R, Rw, Ru	wire size AWG	10	24.6	21.3			
THERMOPLASTIC		8	32.8	28.4	23.2	16.4	
types T, TW		6	45.1	39.0	31.9	22.5	
	Correction factor		.88	.82	.75	.67	.58
	wire size AWG	10	26.4	24.6			
RUBBER		8	39.6	36.9	33.7	30.1	26.1
type Rh		6	57.2	53.3	48.7	43.5	37.7
		4				56.9	49.3
	Correction factor						.91
ASBESTOS	wire size AWG	14					27.3
types A, AA		12					36.4
		10					50.0

When the branch circuit run has been satisfactorily installed complete the electrical supply to the machine at the fuse box inside the left door of the machine. Refer to figure 8 and follow the steps listed below.

a. Remove the screw along the top of the fuse box door, then swing the door open to gain access to the interior.

b. Install the proper fitting for the armored cable or heavy duty rubber covered cable in the hole (4, Figure 8) through the rear panel.

c. Route the conductors from the hole in rear of machine up through the hole in rear of fuse box. Connect the two line conductors to terminal block. Connect the ground wire as mentioned earlier and make sure main lamp fuses and the motor and heater fuses are in place.

d. Check the two toggle switches (lamp and heater) on the top of the fuse box (1 & 2, Figure 8) to make sure they are on. Check the two speed control fuses (5 amp) inside the fuse holders (3).

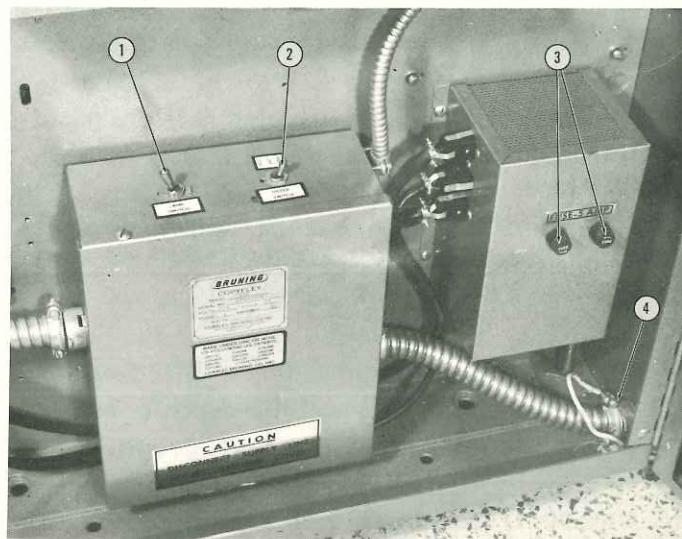
e. Before turning on the power at the branch circuit turn off the lamp switch, and momentarily start the machine with the start button on the right control panel to try out the wiring.

trical circuits. After the machine has been stopped or the power shut off, always wait at least five minutes before opening the fuse box or the main electrical compartment in the base of the machine. This waiting period is necessary to permit the large power supply capacitors to discharge.

f. Close the fuse box door and secure it.

Figure 8. Fuse and Speed Control Boxes

1. Lamp Switch
2. Heater Switch
3. Fuse Holders
4. Supply Line Hole



WARNING

Use extreme care when working on the elec-

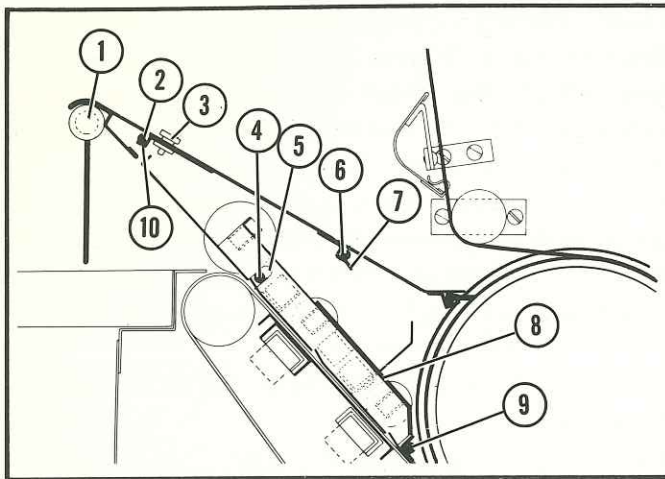


Figure 9. Installation Diagram

INSTALLING the TRACING FEED-IN ASSEMBLY

Slide the entire assembly (8, Figure 9) into the front of the machine until the leading edge hooks onto the retaining studs (9). Next, lower the rear of the unit until the notches (5) in the endplates engage the supporting studs (4).

INSTALLING THE TRACING GUARD ASSEMBLY

Slip the tracing guard unit (1, Figure 9) into position with the floating collar (rubber side left) toward the hole on the inner side of the left control panel. Insert the spring-loaded end, identifiable by the protruding locking screw, into the corresponding hole in the side of the right control panel. Push the entire assembly toward this side, while simultaneously locating the pin in the left side hole. Release the pressure and the unit will seat in position.

INSTALLING THE TRACING TRAY - BRUSH HOLDER ASSEMBLY

Using Figure 9, slip this assembly into position so that the brackets (7) on the underside of the unit engage the studs (6) on the sideplates. Allow the edge nearest you to rest on the rear set of studs (2). Loosen the thumbscrews (3), while sliding the locks (10) toward you until they engage the studs. Then, with the unit in position, tighten the thumb screws.

REGISTERING YOUR MACHINE

As soon as the installation of your machine is completed, check through the papers and documents found in the large manila envelope received with the machine. Select the Lamp Guarantee Card and Machine Questionnaire Form and return these to the Charles Bruning Company.

It is important that you fill in all the information requested on these forms and mail them as soon as possible to insure your machine and lamp guarantees are in effect.

GENERAL OPERATING INFORMATION

Operation of your Copyflex machine is simplicity itself once you have familiarized yourself with the operating controls and machine features. These enable you to vary the operating routine to fit the job. After setting the controls most of the operating cycle is automatically performed by the machine. You need only to feed the master tracings and Copyflex paper into the machine and vary the exposure. Exposure and return, development, and print delivery are performed automatically.

FILLING THE DEVELOPER SECTION

Mix the developer solution using the mixing jars, bottles and stirring rod supplied with the machine (see Figure 2). Pour the solution into the plastic bottle (1, Figure 10), then replace the valve assembly and install as follows:

- a. Open the left door of the machine and check that the drain valve handle (4, Figure 10) is hooked in the raised position.
- b. Install the plastic bottle as shown in Figure 10, by swinging the bottle support arm (3) down in either direction, far enough to allow easy access for positioning. When placed correctly, developer solution will flow into the reservoir and trough.



for BETTER prints and copies

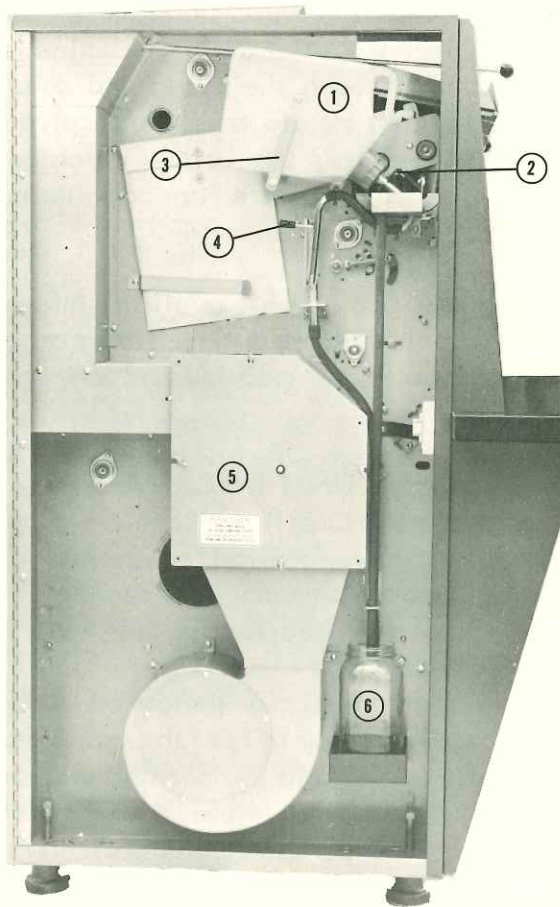


Figure 10. Model 430 Left-Side Compartment

1. Developer Bottle and Valve
2. Bottle Holder Bracket
3. Bottle Support Arm
4. Drain Valve Handle
5. Lamp Housing Cover
6. Drain Bottle

OPERATING CONTROLS

The controls provided for operation of your machine are related to the machine process cycle - starting (stopping), running speed, feeding, exposure, tracing and exposed print return, development and print delivery.

Study the following paragraphs, accompanying photographs and illustrations to learn the location and function of the various controls before using the machine.

RIGHT PANEL CONTROLS

The right panel (Figure 11) contains the main switch (start-stop), the speed control knob and the reversing switch. Before starting the machine be sure the speed control is at a dial setting of 1 or 2 to avoid overloading the electrical components. This speed is also recommended when idling the machine to avoid overheating or undue wear on moving parts. Also make sure the lamp and heater switches are on (Figure 8). The heater should be on "high". Once the machine is warmed up the mechanical speed can be varied from 1-30 feet per minute in a ratio of about 1 to 4 as shown on the dial. This is the speed the stock travels in the machine.

CAUTION

Be sure to turn the lamp and heater switches off when turning off the main switch.

REVERSING SWITCH

The reversing switch permits realignment of tracing and Copyflex paper should they slip out of register while being fed into the machine. By flipping the

Figure 11. Right Control Panel



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switch to reverse, the master and print paper will roll back to you for correction (or replacement in the case of exposed Copyflex paper).

After correcting the problem, throw the switch to "forward" and the normal cycle will be resumed.

CAUTION

Never flip the switch to reverse when the print is passing through the developer section.

PAPER CUTTER

Under the feedboard is a paper cutter cable (10, Figure 2) that is provided to cut roll stock to size. This cutter is operated by grasping the cable with the right hand and pulling outward when the desired paper cut-off point is reached. This should be a quick, but smooth operation.

DEVELOPER SECTION CONTROLS

Three controls are involved in the operation of the developer unit. These are shown in Figure 12 and are as follows: (1) the nite latch, (2) the trailing edge guide handle, and (3) the developer handle.

The nite latches (there is one at each side of the unit) have two positions. In the lowered position as shown, they permit normal operation of the developer rolls. When the machine is shut down at night the latches must be raised. This is done by pulling out on the black handles at each side and moving them up until they lock in the holes in the

brackets. This action separates the soft rubber pressure rolls and prevents them from being deformed by the stepped weight roll or sticking together.

The developer handle can be placed in three positions. For normal operation the handle must be in the lower notch to permit the developer rolls to rotate. The upper notch is the idle position, which is used primarily in case a print wraps around the developer rolls. The third position raises the handle completely above the notched bracket and moves the developer rolls clear of the developer trough for cleaning purposes.

The trailing edge guide handle is used to tilt the guide finger assembly up or down. The normal position is down to enable the prints to pass into the dryer and delivery sections. In the up position the prints will be ejected before reaching the aforementioned areas. This is used should superfast papers or films be run to by-pass the dryer heat. Retrieve the prints by hand as they feed out of the developer section.

It is also possible to reduce the intensity of dryer heat with the heater switch mounted on the fuse box (2, Figure 8). The switch can be turned low or off to reduce the heat. With the switch off the dryer will utilize only the heated air from around the printing lamp.

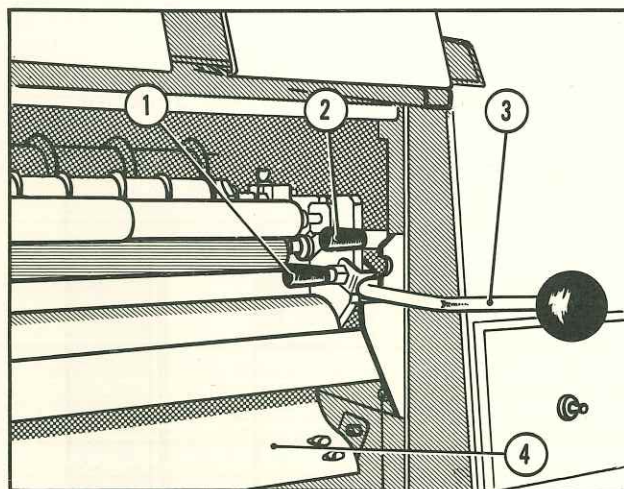
TRACING GUARD ASSEMBLY

When running long rolled tracings, swing the tracing guard assembly (1, Figure 9) until the fingers are vertical to the feedboard surface. Be sure the leading edges of your tracing and Copyflex paper are under the fingers. Let the rolled up portion rest against the unit and the tracing will then automatically unroll.

Leave the fingers in the vertical position as they will prevent the re-entry of the tracing into the printer section.

If roll stock Copyflex paper is being used, cut the paper as soon as the trailing edge of the tracing clears the front edge of the feedboard as described previously.

Figure 12. Developer Controls



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PRINT DELIVERY SELECTOR

Through use of the print delivery selector (1, Figure 13) located at the rear of the machine, you may route the finished prints to either the front print receiving tray or out the rear. Snapping the handle up routes the finished prints out the rear of the machine. Leaving the selector handle in the normal down position directs the prints out to the front print tray.

PRINT RECEIVING TRAY

The print receiving tray, located at the top front of the machine, is made in two individually adjustable halves to permit stacking of different size prints during the same run (see Figure 14).

To stack 8-1/2" x 11" prints keep the tray (or trays) pushed all the way in. This position will accommodate stock up to 12" x 18" lengthwise.

To stack prints up to 18" x 24", pull the tray (or trays) out as far as they will go.

THE BRUNING COPYFLEX METHOD

To help you understand how to operate your machine it may prove beneficial to review a few facts about the Copyflex process. The Model 430 employs the Bruning Copyflex principle to produce diazo prints. Anything drawn in pencil, ink, printed or typed (except in non-reproducible colors such as light blue or violet) on one side of a translucent paper, film or tracing cloth can be copied by the process.

The master tracing is placed on top of the coated (sensitized) Copyflex stock and fed into the machine where light from the mercury lamp passes through the translucent master and strikes the coated Copyflex paper. The light cannot penetrate where the lines are on the master and thus does not strike the sensitized coating of the Copyflex paper. The exposed stock passes on through a chemical fluid developer which dyes the latent image lines, but has no effect on the areas which were exposed by the light from the mercury lamp.

After drying rapidly in the machine a crisp, dry, whiteprint with black or colored lines (depending on the developer and paper used) is delivered to the operator within seconds after it was fed into the machine. The master tracing and print will pass through the printer section and then the exposed print should be fed into the developer slot as shown in 4, Figure 12.

The master is ready for immediate re-insertion to make another print, or for return to file. The fully developed print then moves over the heater area for drying and then continues onto the rear print tray.

GRAIN DIRECTION

To prevent the Copyflex paper from wrapping around the developer rolls, the paper should be fed according to the directional arrows on the package. These arrows indicate the grain of the paper. L.G. and S.G. are abbreviations for "long grain" and "short grain". Grain direction should be specified in all orders for sheet stock. Long grain papers have their grain running parallel to the long side of the sheet. Short grain papers have their grain running parallel to the short side. If you are in doubt about the grain of any paper it can be proved by folding it into quarters and then checking the creases. The crease is smooth with the grain direction and rough against it.

PRINT EXPOSURE

Exposure time is dependent upon the transparency and condition of the original material. Check "Hints for Better Prints" (Table II) on the following page.

Figure 13. Print Delivery Selector

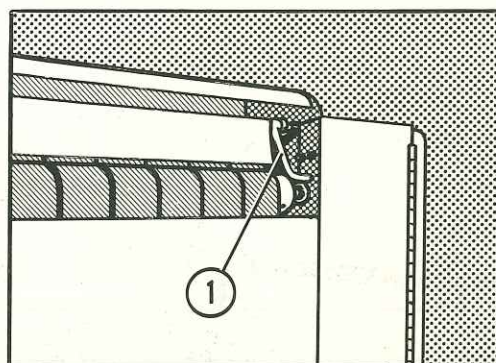


Table II. HINTS FOR BETTER PRINTS

CONDITION	CAUSE	REMEDY
Dark background	Speed too fast (underexposed)	Reduce machine speed
	Opaque master material used	Use translucent stock without grain for master
Weak image lines	Speed too slow (overexposed)	Increase machine speed
	Density of line too light	Use soft pencil, emerald green ink, or carbon back original for maximum line density
Undeveloped spots	Developer supply low	Refill developer bottle
	Dirty developer rolls	Clean rolls (see Maintenance Section)
Dark spots	Dirty cylinder or original	Clean cylinder
One edge or corner weak or missing	Paper pre-exposed to light	Store paper in protective cover and cabinet when not being used
Greenish lines	Excessive water in developer	Check developer mix instructions
Brownish lines	Lack of water in developer	Check developer mix instructions
Print stained brown	Concentrated developer	Add water or mix new developer

For information on reflex copying from opaque masters, colored lineprinting, colored paper, film and other reproduction methods, as well as short cuts in time and money, ask your Bruning Man - He's a Reproduction Specialist. He can tell you how to produce multi-colored images, copies of Polaroid slides, intermediate masters, and a host of other reproduction variables using Bruning paper and supplies.

A complete list of the papers and developers available for your Copyflex Model 430 is shown in Tables III and IV.

Table III. Copyflex Developers

Catalog Number and Description	
27-112	Black line; makes approximately 24 oz.
27-113	Black line; makes approximately 48 oz.
27-114	Black line; makes approximately 96 oz.
27-115	Black line; makes approximately 5 gals.
Copyflex Color Developers	
27-131	Blue line; makes approximately 12 oz.
27-132	Blue line; makes approximately 24 oz.
27-133	Blue line; makes approximately 48 oz.
27-142	Brown line; makes approximately 24 oz.
27-152	Red line; makes approximately 24 oz.
27-161	Yellow line; makes approximately 9 oz.

Your Bruning Man can also get you such allied products as eradicators, surface cleaners, transparentizers, papers, drafting supplies and electric erasing machines. Ask him for booklets describing our many products, or write to Marketing & Promotion, Charles Bruning Co., Inc., Mt. Prospect, Ill.



Copytron



The Charles Bruning Company also manufactures an electrostatic processor called the Copytron Model 2000. This machine copies any document - any color - up to 11" wide by any reasonable length. It makes dry, photo-exact black-on-white copies automatically, yet provides the lowest cost-per-copy of any electrostatic copier with a minimum of operator maintenance. See your Bruning Sales Representative to arrange a demonstration of this latest advancement in the field of business copying machines.

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Table IV. Copyflex Papers, Cloths and Films

COPYFLEX OPAQUE PAPERS

Catalog No.	Application	Description	Speed
25-173	For copying practically all business and industrial paperwork; particularly with regard to mailings and filing.	17 lb. light, std. wt., black line	3
25-175			5
25-177			7
25-193	For color-coding engineering, shipping and receiving and business office paperwork.	18-1/2 lb. tinted stock - specify blue, green, pink, yellow or salmon	3
25-195			5
25-197			7
25-203	For copying practically all business and industrial paperwork; especially useful for engineering drawings and office system forms.	20-1/2 lb. std. wt., black line	3
25-205			5
25-207			7
25-2084		20-1/2 lb. std. wt., sepia line	8
25-243	For reproduction of forms and drawings on heavier weight base stock to resist constant wear and handling	24 lb. heavy wt., black line	3
25-245			5
25-247			7

COPYFLEX OPAQUE CARDSTOCKS

25-323	For prints of documents that must withstand considerable handling.	32 lb. cardstock, black line	3
25-325			5
25-483	Tinted cardstocks are invaluable for color-coding prints for distribution purposes.	48 lb. cardstock - specify blue, green, pink, yellow or white	3
25-485			5

COPYFLEX ACETEX CONTRAST PAPERS

26-035	Ideal for use with maps, chart presentations and color display work.	Acetate-coated cardstock, white
26-036		Acetate-coated cardstock, aluminum

COPYFLEX OPAQUE CLOTH

26-110	For permanent prints that must withstand considerable abuse in the office or field.	Medium thickness, opaque cloth
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COPYFLEX TRANSLUCENT PAPERS

26-200	Used to make duplicate originals, masters or intermediates in either engineering or business office.	17 lb. white base, sepia line
26-205		Same, meets Gov. Spec. MIL-P-9853

COPYFLEX TRANSLUCENT CLOTH

26-242	Used to preserve original drawings and to make duplicate originals of greater strength and permanence.	Light blue base, water repellent, sepia line
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COPYFLEX MATTE FILMS

26-320	Used where extensive handling of originals is necessary and where alterations or additions must be made	Sepia coated 1 side, .005" thick
26-330		Near black, coated 2 sides, .005" thick
26-340		Sepia coated 1 side, .0075" thick
26-350		Sepia coated 1 side, .010" thick

COPYFLEX CLEAR FILMS

26-510	For highest speed production of final prints and where changes or alterations will not be necessary; and for projection usage.	Sepia coated 1 side, .005" thick
26-520		Near black, coated 2 sides, .005" thick
26-530		Sepia coated 2 sides, .005" thick
26-540		Sepia coated 1 side, .0075" thick

NOTE: Speed 3 materials yield the densest image and are recommended for most reproduction work. Printing speeds are relative; i.e. speed 8 would be faster than speed 5.

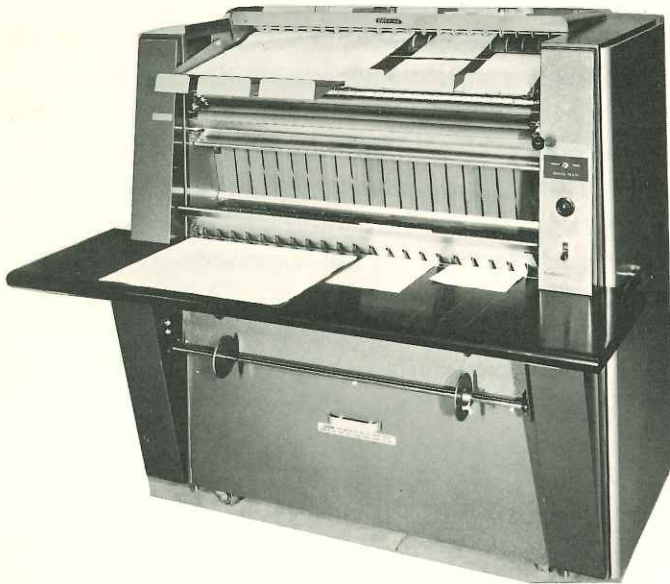


Figure 14. Print Receiving Tray Operation

After you have operated the machine for a time you will develop your own technique for handling tracings and prints and you will soon learn the best exposure time for tracings and other masters of varying opacity. Once you have found the correct speed and lamp shade settings for new materials or stock infrequently used, make a record of the settings and post it near your machine for future reference.

GENERAL MAINTENANCE INFORMATION

The instructions included in this section are intended to cover procedures generally called operator maintenance. These include cleaning, lubrication, and minor adjustments which can be made by the operator or in-plant maintenance personnel. For other maintenance, contact your Bruning Representative. Fast nationwide service is available when you need it.

CLEANING THE DEVELOPER SYSTEM (DAILY)

Developer solution, left to dry on any of the system components, deposits salts which dry and harden. Although the salts are water soluble in their original powder form, they do not dissolve easily once they form a deposit. By faithfully performing the following clean up procedures each time the machine is shut down at night you will avoid difficulty.

- a. Run the machine at idle speed (1-2) during the cleaning operation.
- b. Open the left side door and swing the developer bottle retaining arm down to facilitate the removal of the developer bottle. Carefully remove the bottle and place it aside.
- c. Unhook and lower the developer drain handle as far as it will go.
- d. Move the developer handle (3, Figure 12) out of the notch and raise the handle above the bracket to lift the developer assembly clear of the trough. The counterbalanced assembly will stay up until forced down by hand.
- e. Use the developer trough squeegee (9, figure 2) to remove all the developer. Push the squeegee from right to left.
- f. After all of the developer solution has been drained from the system, fill the trough with about 32 ounces of clear water.
- g. Lower the developer assembly into the trough with the developer handle and secure the handle in the lower notch so the rolls rotate. Run the developer rolls in the water for ten minutes and then drain the system as described above.
- h. After flushing the system shut down the machine and raise the ratchet latch (1, Figure 12) at each side of the developer assembly. Be sure each latch pin slips into the lock hole in the brackets so the pressure rolls will stay separated from the stepped weight roll.

CLEANING THE DEVELOPER SYSTEM (WEEKLY)

A weekly cleaning in Bruning Roll Cleaner or a solution of standard household bleach will aid extensively in maintaining clean developer rolls.

The frequency of cleaning is entirely dependent on the extent of machine usage. Around the clock, or exceptionally heavy usage will, in most cases, require cleaning every other day.

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Follow the procedure outlined below for cleaning the developer rolls:

- a. Drain the system of developer.
- b. Introduce about 32 ounces of cleaning solution and allow the rolls to soak in it for about 15 to 20 minutes at machine idling speed (1-2).
- c. Drain the cleaning solution and add clear water to cleanse the roll of any solution that may remain. After 10 minutes, drain and squeegee dry.

CLEANING THE GLASS CYLINDER (AS REQUIRED)

The cylinder may become dirty from contact with the paper and ambient air entering the machine through the bands. If the cylinder becomes dirty the printing speed will drop. Prints may be "freckled" if dense dirt or lint spots form on the cylinder. Both the interior and exterior must be cleaned using the duster handle and head (3 & 6, Figure 2) supplied with your machine to remove loose dust.

To clean the cylinder exterior perform the following steps:

- a. Lift the tracing receiving tray off the feedboard and out of the machine. Now remove the brush holder, feed-in, air seal, and light shield assemblies, reversing the assembly procedure.
- b. Run the machine at idle speed and dust off the glass cylinder as it revolves. Follow the dusting with a good cleaning using a soft, damp cloth.
- c. Follow the exact procedure as outlined earlier to return the parts to normal operating set-up.

Clean the interior of the cylinder about every six months or oftener if inspection discloses excessive dirt. To gain access to the cylinder interior, the lamp duct assembly must be removed. Follow the instructions in the installation section for installing the lamp upon receipt of the machine. With the duct removed carefully dust the cylinder interior with the duster.

CLEANING THE TRAILING EDGE GUIDE

FINGERS AND ROLLS (ALTERNATE DAYS)

Remove the trailing edge guide fingers (See Figure 2A) and then rinse under a spray of warm water. Clean each finger with a soft damp cloth. Do not use abrasives of any kind. While the guide fingers are out of the machine lift out the floating rolls and clean in the same manner.

Now lift the trailing edge rolls out and perform the same procedure. Wipe with the damp rag until all residue has vanished.

CLEANING THE MACHINE EXTERIOR

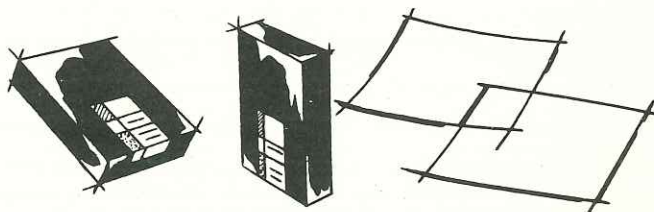
Use mild soap and water to clean the painted surfaces of the machine. Household polish may be used on the large painted surfaces but do not use oily polishes or waxes on the feedboard or bright metal parts which come in contact with tracings or sensitized material.

CLEANING THE BASE ELECTRICAL COMPARTMENT

Occasionally the electrostatic charges present in the electrical compartment may cause dust and lint to build up on motors, capacitors, terminals, and wirings with the main power off. These deposits can be loosened with a cloth or duster and blown away with low-pressure compressed air.

CAUTION

Shut off the power at the branch circuit disconnect before opening the base compartments. Only qualified personnel should open the electrical compartment. The capacitors in the base retain a high-voltage charge for several minutes after the power to the machine is shut off. Wait five minutes or more before opening the panels.



LUBRICATION (MONTHLY)

Lubricate the chain monthly using a good grade of clean SAE20 or SAE30 petroleum oil without additive. Some additives leave a varnish or gum deposit which prevents the oil from entering the chain joints. Heavy oils and greases should not be used. Oil should be applied with a brush or spout can to the upper edges of the inner and outer link plates to allow a flow of oil between the chain link plates and to fill the pin bushing area.

ADJUSTMENTS

The following minor adjustments can be made by the operator or in-plant maintenance personnel using tools provided with the machine.

ADJUSTING CHAIN SLACK

The drive chain inside the right side door should be checked occasionally for proper slack. Select the midpoint in the chain path between two sprockets and check the maximum chain deflection at that point. For each 12 inches of chain run, the chain should have about a 1/4" deflection. Use the "crowfoot" idler adjusting wrench (10, Figure 2) to loosen the stud nuts securing the idler sprockets to the side panels. The idler sprocket studs are mounted in slots and can be moved in the desired direction to adjust the chain tension for more or less slack. Tighten the stud nuts after the adjustments are made.

BRUNING ELECTRIC ERASING MACHINE



Types of Copyflex paper or film most used:

Catalog Nos. Sizes

_____	_____
_____	_____
_____	_____

Serial Number of Machine: _____

Date Lamp Guarantee Ends: _____

Bruning Office Phone Number: _____

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SHOULD YOU NEED SERVICE

Fast, dependable, quality service is only a phone call away. When you call, ask for the Service Department where trained personnel are prepared to help you either over the phone, or by dispatching a Service Representative. By stating the details of your complaint, the model and serial number, you can be helpful in accelerating the solution to your problem. It is not unusual for our trained service personnel to give a step by step account on how to make the repair or adjustment over the phone to in-plant maintenance workers.

The most important service to the machine is periodic preventive maintenance which can best be accomplished by a Bruning Machine Service Agreement. Bruning is a symbol of quality in design, construction, and performance; into every machine are built years and years of smooth, dependable service.

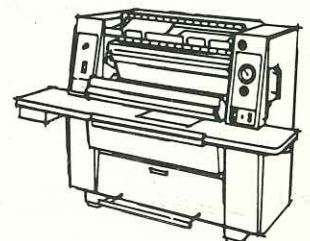
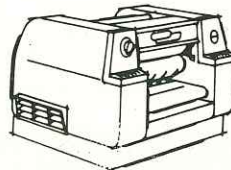
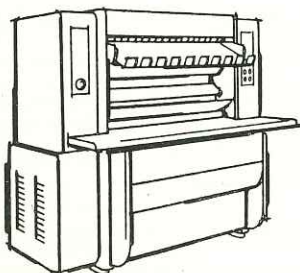
A Bruning Machine Service Agreement is a means of protecting your investment so that it will give you the greatest possible return over the years. As with an automobile, typewriter, adding machine, or any other mechanism, a Bruning machine will operate at peak efficiency only if given professional inspection and servicing periodically. Throughout the duration of the agreement, a Bruning Machine Service Agreement does all these things:

1. Provides for essential cleaning and proper lubrication of all moving parts.
2. Eliminates unnecessary wear on moving parts.
3. Maintains factory-recommended standards of adjustment.
4. Cuts down on the need for major repairs.
5. Reduces parts replacements to an absolute minimum.
6. Protects against machine breakdowns and costly operating interruptions.
7. Keeps each machine in top mechanical condition to meet any work load - large or small.

Just as important as the machine itself is the kind of care and protection it gets. And just as Bruning machines are designed and built by experts, the professional inspection and servicing provided by Bruning Service Representatives are the finest. These factory-trained representatives know and understand our machines thoroughly, are courteous and attentive, and are ready and willing to answer questions and offer advice on the operation of any machine.

At the lowest possible expense to you, a Bruning Machine Service Agreement is your assurance of maximum machine performance ... your guarantee of uninterrupted reproduction.

Contact your nearby Bruning branch or distributor as shown on back cover for details.

**BRUNING**

model
430
parts
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The part numbers listed in this manual are standard for all Model 430 machines manufactured, serial number 594301 and up, except as noted. Include the machine serial number in all correspondence regarding the parts of the machine to insure positive part identification.

Printed in U.S.A.

Cabinet Parts

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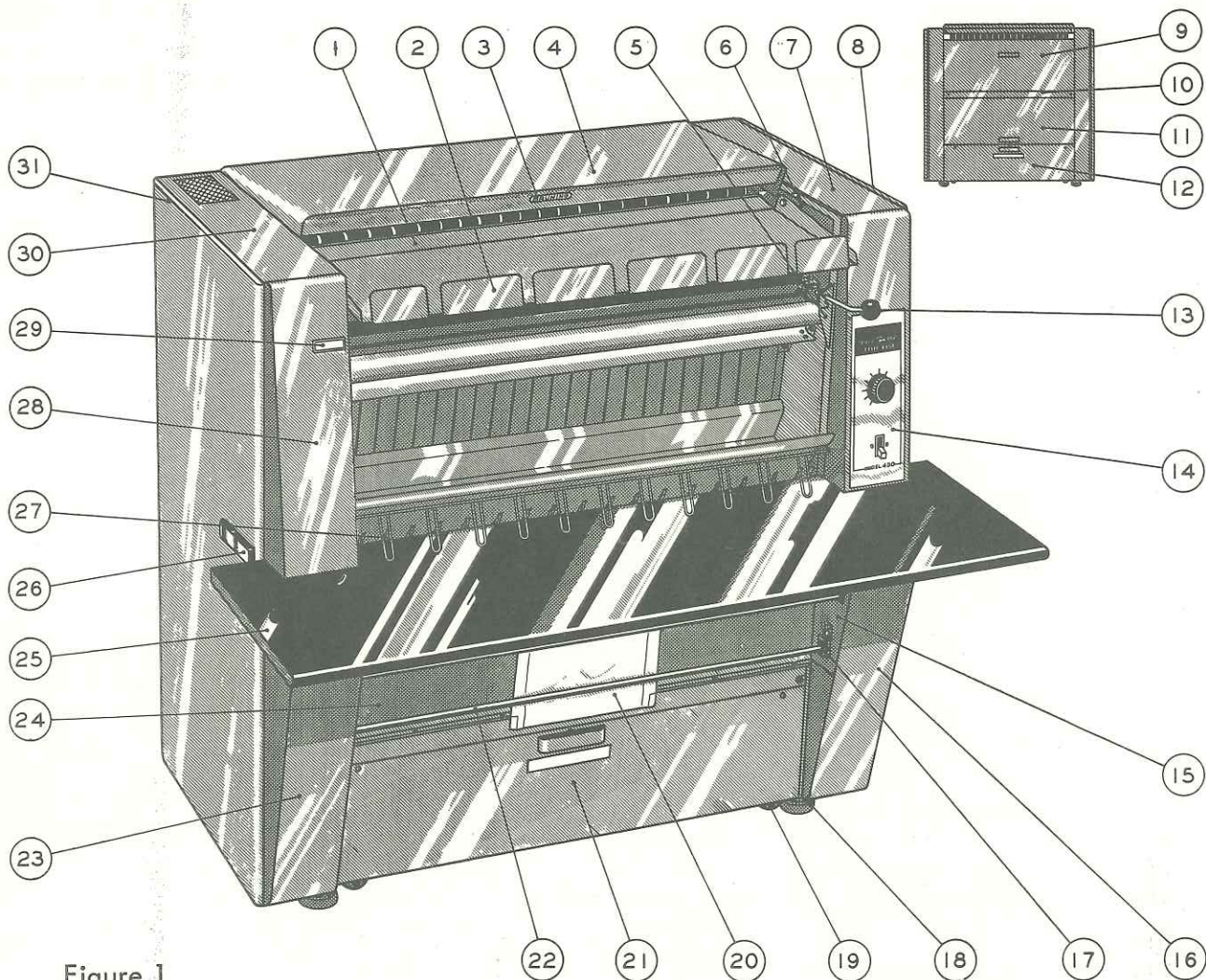


Figure 1

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	26272	Stacking Tray Print Guide Assembly (S/N 594301 to 61430100)	1
	27118	Stacking Tray Print Guide Assembly (S/N 61430101 and up)	1
2	26436	Print Tray S. A.	1
	19275	Print Tray Stop	4
	19276	Print Tray Spring	4
	26437	Print Tray Assembly	1
	26438	Extension R. H.	1
	26439	Extension L. H.	1
	51218	#10-32 x 1/4" Oven Hd. Sc.	4
3	18490	Bruning Nameplate	1

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
4	26383	Hood Assembly	1
5	21355	Lock Bracket	1
6	15363	Stop	1
7	26336	Column R. H.	1
8	26333	Door Assembly R.H.	1
	*26445	Striker Plate Mtg. Bkt.	1
	*25753	Magnetic Strike Plate	1
9	26395	Rear Panel S.A. - Upper	1
	13990	Door Handle Spacer	2
	25253	Rear Panel Assy. - Upper	1
	26355	Door Handle Assembly	1
	26099	Quick Lock Stud	1
	50016	#10 Lockwasher	2
	50017	#10 Brass Washer	2

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
10	25353	Rear Panel Support	1
11	26398	Rear Panel S.A. - Center	1
	13990	Door Handle Spacer	2
	25249	Rear Panel Assembly	1
	26099	Quick Lock Stud	1
	26355	Door Handle Assembly	1
	50016	#10 Lockwasher	2
	50017	#10 Brass Washer	2
12	26397	Rear Panel S.A. - Lower	1
	25257	Rear Panel Asy. - Lower	1
	25227	Quick Lock Stud	3
	26355	Door Handle Asy.	1
	50117	#10-32 Cap Nut	2
	13990	Door Handle Spacer	2
	50016	#10 Lockwasher	2
	17359	Caution Decal	1
13	25595	Handle Assembly	1
	26941	Bracket Assembly	1
	11865	Knob	1
	13397	Dowel Pin	1
	16876	Roll Pin	1
	25596	Handle	1
14	26629	Upper Angle Column Assembly - R.H. (See Figure 12)	1
15	26325	Feedboard Bkt. Asy - R.H.	1
	*26327	Feedboard Bkt. Asy - L.H.	1
16	26741	Lower Angle Column R.H.	1
17	26380	Paper Rod Bracket - R.H.	2
	*26381	Paper Rod Bracket - L.H.	2
18	10431	Leveling Jack Base	4
19	25974	Caster (Part of 26387)	4
20	19455	Roll Stock Brake Assembly	1
	19456	Hook Belt	1
	19457	Rod	1
	19458	Weight Bar	1
	19459	Canvas Brake	1

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
21	26737	Front Panel S.A.	1
	13990	Door Handle Spacer	2
	17359	Caution Decal	1
	25227	Quick Lock Stud	3
	26355	Door Handle	1
	26738	Front Panel Assembly	1
	50016	#10 Lockwasher	2
	50117	#10-32 Cap Nut	2
22	26361	Paper Rod	2
23	26740	Lower Angle Column L.H.	1
24	26340	Front Panel	1
25	26329	Feedboard Assembly	1
	26331	Feedboard Lip	1
	26862	Feedboard	1
	26332	Front Panel Support	1
	7448	Spacer	2
	10362	Paper Cutter Spring	2
	21173	Paper Cutter	1
	50906	#10 x 1" Rd. Hd. Wood Sc.	4
	50907	#10 x 1-1/4" Rd. Hd. Wood Sc.	2
	10363	Screw Eye	1
	50015	#10 Flat S.A.E. Washer	2
	*22203	5/16"-18 Unc. Insert-Knife	4
26	25320	Door Handle Assembly	1
	25321	Door Handle	1
	14173	Weld Bolt	2
27	26762	Tracing Guard S.A.	1
	*26447	Sound Insulator	3
28	26337	Upper Angle Column L.H.	1
29	20755	Latch Plate	1
30	26335	Column - L.H.	1
31	26334	Door Assembly - L.H.	1
	*26445	Stricker Plate Mtg. Bkt.	1
	*25753	Magnetic Striker Plate	1

* Order Separately

Left Side View

BRUNING

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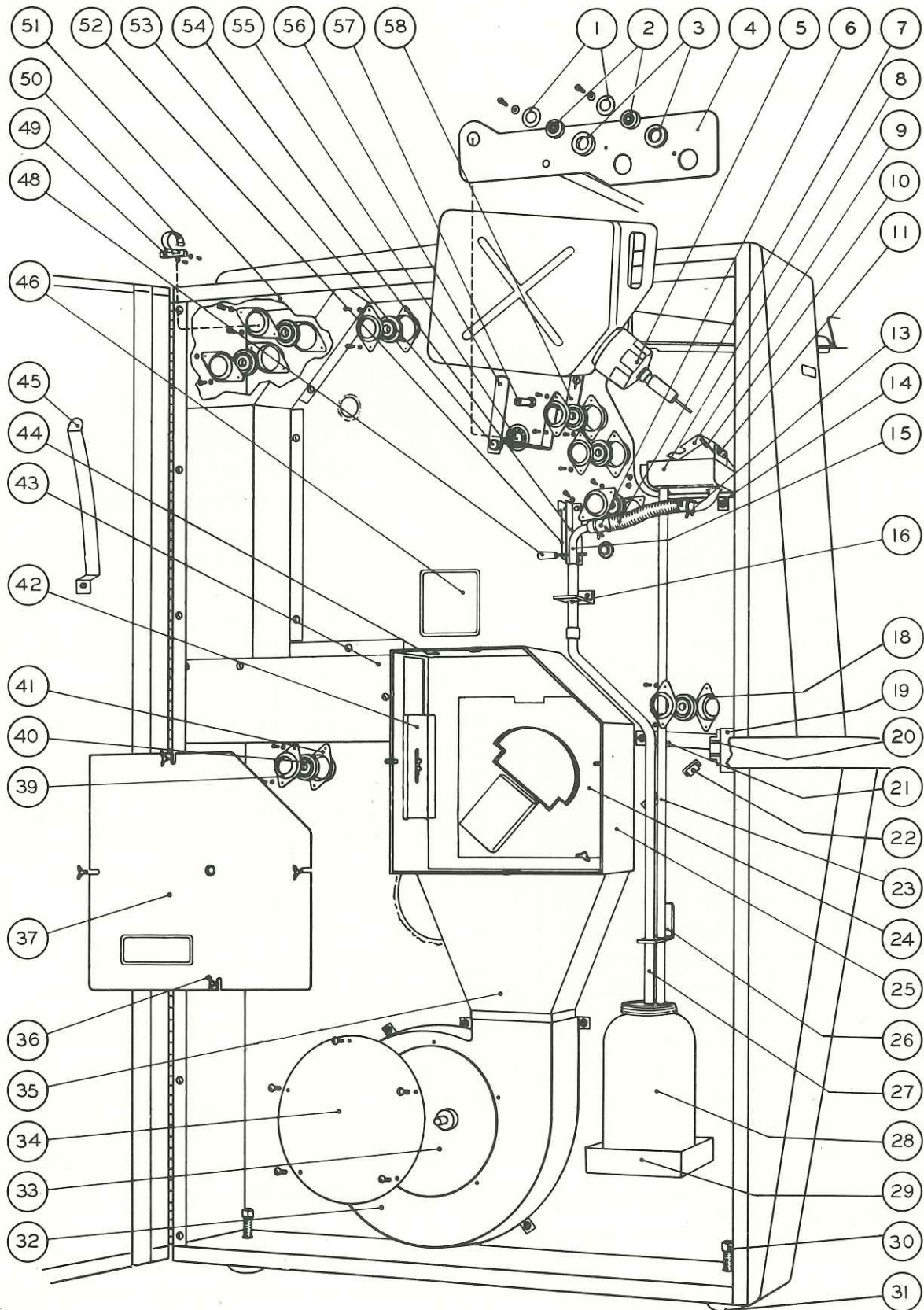


Figure 2

REF. NO.	PART NO.	DESCRIPTION	AMT. USED	REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	15781	Bearing Retainer	2	32	26264	Blower Scroll Assembly	1
2	30303	Ball Bearing	2		*25214	Blower Inlet	1
3	12899	Bearing Housing	2	33	25046	Blower Wheel L. H.	1
4	25334	Yoke Sideplate Asy L.H.	1	34	25213	Blower Cover	1
5	26275	Developer Bottle Assembly (See Figure)	1	35	26267	Scroll Extension S.A.	1
6	26350	Drain Tube	1	36	26616	Wing Nut	9
7	26367	Tank Hose Sleeve	1	37	26692	Lamp Housing Cover L.H.	1
8	26323	Trough Assembly	1	39	19062	Bearing Housing Cover	9
9	26377	Developer Bottle Support Bracket	1	40	17638	Ball Bearing	9
10	26378	Developer Bottle Support	1	41	19064	Bearing Housing	8
11	25629	Twin Nut	2	42	26495	Lamp Housing Door L.H.	1
13	15517	Hose Clamp	3	43	26845	Exhaust Duct Asy. L.H.	1
14	25013	Trough Bracket L. H.	1	44	26744	Air Seal-Shade Handle Opening	1
	*16960	#10-32 x 1/2 Hex. Hd. St. Steel Sc.	2	45	14071	Clip for Instruction Manual	1
	*18422	Stainless St. Washer	4	46	18447	Maintenance Decal (on door)	1
15	26343	Drain Tube Assembly	1	48	14400	Handle	1
16	26345	Drain Tube Assembly	1	49	25552	Spring Retainer Assembly	1
18	19063	Bearing Housing	1	50	25555	Spring	1
19	26446	Magnetic Door Catch Bkt.	1	51	26285	Top Exhaust Assembly	1
20	17927	Magnetic Door Catch	1	52	16358	Latch	1
21	26360	Column Bracket	2	53	26554	Washer	1
22	26236	Band Support Assembly	1		*26555	Spring	1
23	26743	Rubber Overflow Tube	1		*50303	1/4"-20 x 3/4" Hex.Hd.Sc.	1
24	26291	Cover Housing Asy. L.H.	1		*12917	Elastic Stop Nut	1
25	26299	Lamp Housing Asy. L.H.	1	54	26382	Latch Bracket	1
26	26348	Drain Hose Support Bkt.	1	55	17981	Ball Bearing	1
27	26349	Rubber Drain Tube	1	56	26375	Bottle Retainer	1
28	26394	1/2 Gallon Jar	1	57	27457	Developer Yoke Stop	1
29	18069	Bottle Holder	1	58	26376	Bottle Bracket	1
30	10561	Jack Screw	4				
31	10431	Base Levelling Jack	4				

*Order Separately

Right Side View

MODEL 430

BRUNING

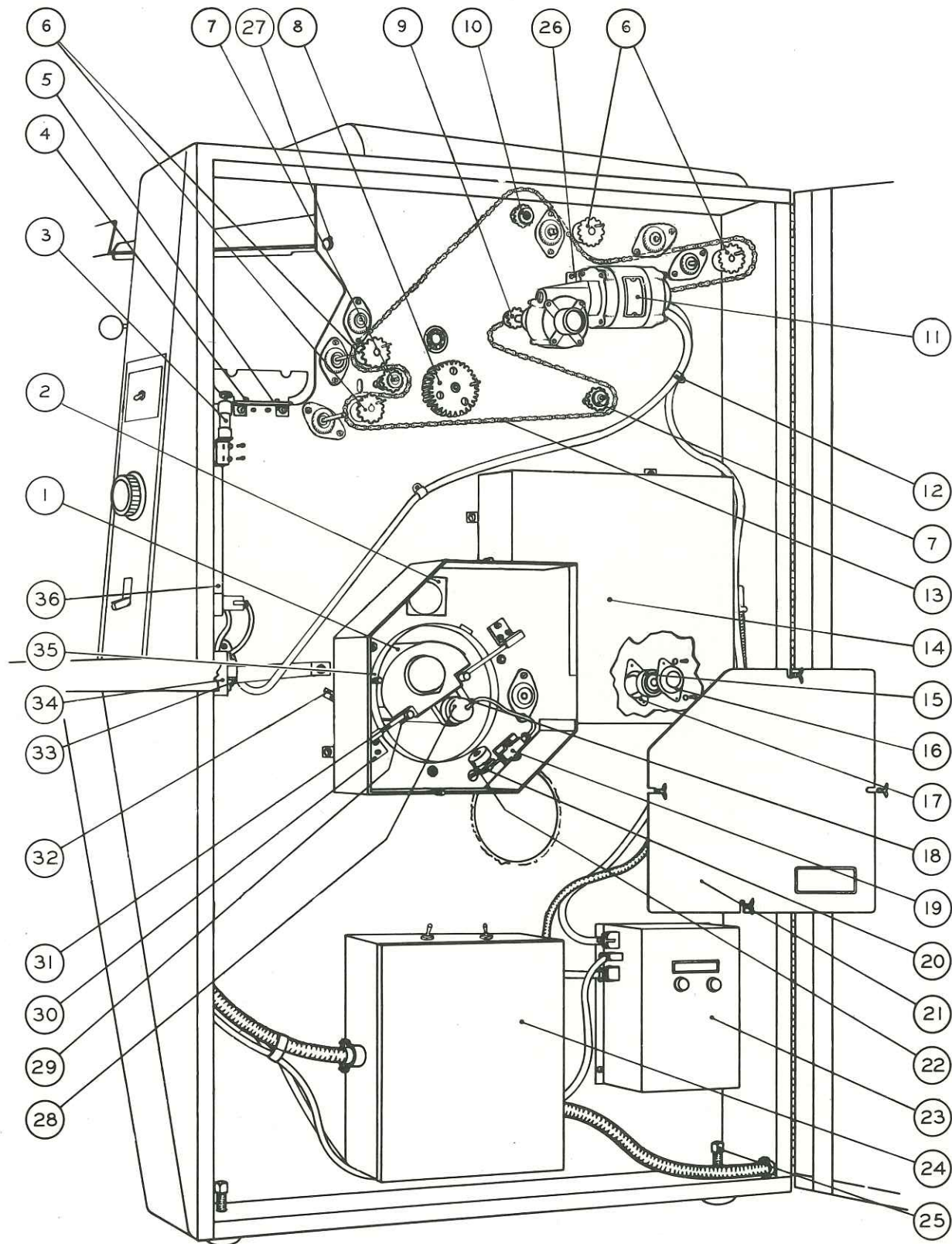


Figure 3

REF. NO.	PART NO.	DESCRIPTION	AMT. USED	REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	26658	Duct Assembly (See Figure 11)	1		20347	Plug (4 Contact)	1
2	26641	Duct Seal	1		25829	Socket (4 Contact)	1
3	16550	Hydraulic Check Assembly	1	12	5737	Cable Strap	4
	14706	Plunger Assembly	1	13	26631	Chain (70-1/2" long)	1
	14712	Steel Ball	1	14	26304	Lamp Housing Asy. - R.H.	1
	14713	Cylinder Cap	1	15	17638	Ball Bearing	9
	14714	Spring	1		*14127	Rubber Alignment Ring	9
	16575	Cylinder Assembly	1	16	19062	Bearing Housing Cover	9
	14710	Cylinder	1	17	19063	Bearing Housing	9
	16576	Bracket	1	18	15468	Wing Nut	2
	*25824	Spacer	1	19	5715	Porcelain Receptacle	4
4	16960	#10-32 x 1/2" Stainless St. Hex. Hd. Sc.	2		*9937	Receptacle Jack	2
	*18422	Stainless Steel Washer	4		*19367	Insulator	2
	*50015	#10 Flat S.A.E. Washer	4		*21097	Insulator (2-Hole)	2
5	25012	Trough Bracket - R.H.	1	20	17471	Guide Roll Bracket	2
6	25896	Sprocket (18T.)	4	21	26295	Lamp Hsg. Cover Asy. R.H.	1
	*20106	#405 Woodruff Key	4	22	10189	Cylinder Guide Roll S.A. (S/N 594301-5943030) (S/N 5943031 and up) (See Callout #62 of Cross-Section View)	6 2
7	25141	Idler S.A.	2				
	13307	Retaining Ring	1	23	26626	Speed Control Assembly (See Wiring Diagram)	1
	13310	Idler Stud	2	24	26257	Pull Box Assembly (See Wiring Diagram)	1
	17858	Sprocket (14T.)	1		*21045	Nameplate	1
	30303	Ball Bearing	2		*21046	Patent Nameplate	1
	50506	#10-32 Cap Screw	1	25	10561	Jack Screw	4
	13311	Spacer	1	26	26632	Motor Mount Bracket	1
	14141	Washer	1	27	27121	Spacer	2
8	25710	Drive Gear Assembly	1	28	26300	3000 Watt Lamp	1
	25064	Gear	1	29	26358	Rd. Hd. Thumb Screw	2
	25708	Drive Plate Assembly	1	30	26368	Duct Guide Bracket R.H.	2
	51230	1/4"-20 x 1/2" Oven Hd. Sc.	3		*26366	Duct Guide Bracket L.H.	2
9	26864	Sprocket (11T.)	1	31	26253	Duct Guide Rod Assembly	2
10	17860	Idler S.A.	1	32	26236	Band Support Assembly	1
	13307	Retaining Ring	1	33	17927	Magnetic Lock Latch	2
	13311	Spacer	1	34	26446	Magnetic Catch Bracket	2
	16888	Idler Stud	1	35	18950	Pyrex Cylinder	1
	17858	Sprocket (14T.)	1	36	26258	Control Panel Cover S.A.	1
	30303	Ball Bearing	2				
11	26628	Drive Motor Assembly	1				
	19002	Drive Motor	1				

* Order Separately

Cross-Section View

BRUNING

MODEL 430

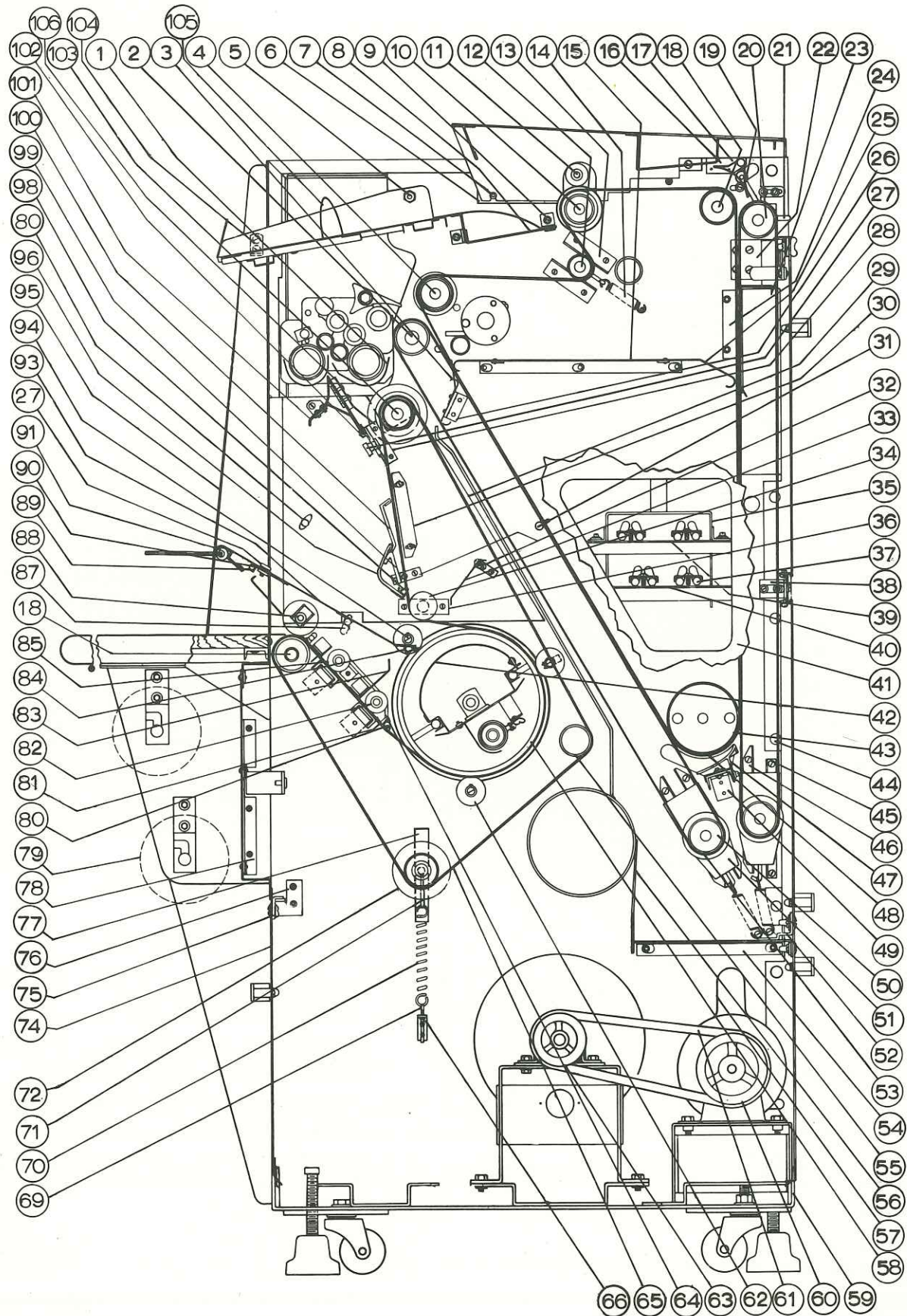


Figure 4

REF. NO.	PART NO.	DESCRIPTION	AMT. USED	REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	26323	Trough Assembly	1	24	25706	Bracket (S/N 594301 to 61430120)	2
2	25296	Band Drive Roller Assembly	1		27216	Deflector Bracket - L.H. (S/N 61430121 and up)	1
	*20106	#405 Woodruff Key	1		27217	Deflector Bracket - R.H. (S/N 61430121 and up)	1
3	25322	Air Seal Assembly	1	25	25594	Air Seal	1
4	25087	Spacer Roll S.A. - Dryer	1	26	25574	Bracket	2
	17866	3/4"-16 Elastic Stop Nut	1	27	26877	Round Hd Thumb Nut	4
	25084	Spacer Roll	1	28	26725	Feed-Up Stop	2
	25081	Washer	1	29	26643	Sideplate Cover - R.H.	1
	25088	Washer (Large)	1		*26644	Sideplate Cover - L.H.	1
	25089	Spacer	21	30	26682	End Seal Printer Bands	2
	25083	Printer Drive Disc	20	31	26734	Band Tension Rod	2
5	26443	Shoulder Spacer	2		*15919	Take-Up Roll Socket	2
6	26385	Spacer	2	32	26681	Print Guide Plate Bracket	4
7	25684	Stud	2	33	26679	Light Seal - Printer Bands	1
8	26272	Print Guide Assembly		34	26650	Band Roll Assembly	1
		Stacking Tray (S/N 594301 to 61430100)	1		10289	Retaining Ring	2
	27118	Print Guide Assembly			14129	Ball Bearing	2
		Stacking Tray (S/N 61430101 and up)	1		14138	Retaining Ring	1
9	26374	Print Guide Mtg. Bracket	4		16748	Rubber O-Ring	2
10	26241	Spacer Drive Roller Asy.	1		26652	Roll Shaft	1
11	26246	Print Feed Roll S.A.	1		26653	Tube	1
	14043	Rubber Feed Wheel	25	35	26341	Heater Guard Assembly	1
	14422	Oilite Bearing	2		*16179	Heater Clamp	4
	26247	Shaft	1	36	26655	Plate and Bushing S.A.	2
12	25114	Shaft-Tension Roll Asy.	1	37	16177	Heater	4
	10188	Retaining Ring	1		*26478	Heater Cap	8
	12178	Bearing	2		*26479	Terminal Heater Cover	8
	15887	Retaining Ring	2	38	25352	Rear Panel Support Bracket	2
	25113	Tension Roll Shaft	1		*25664	Shoulder Nut	2
	25115	Tube	1	39	25665	Heater Holder	1
13	25579	Angle Roll Guide	4	40	26379	Heater Holder	1
14	13293	Spring	6	41	26392	Sideplate - R.H. (For Heater Location)	1
15	25423	Bracket	2	42	26658	Duct Assembly	1
16	25582	Pivot Block	2	43	25147	Band Roller Assembly	1
17	25143	Print Delivery Selector Asy.	1	44	25705	Rear Dryer Band	20
18	17877	Band Roller S.A.	2	45	25581	Guide	2
19	25560	Delivery Selector Stop	2	46	25580	Slide Guide Assembly	6
	*25561	Pad-Delivery Selector Stop	2	47	25605	Guide Finger Assembly	1
20	25110	Band Drive Roller Assembly	1		25607	Finger - L.H.	10
	*20106	#405 Woodruff Key	1		25608	Finger - R.H.	11
21	26248	Handle Asy. - Rear Del.	1		25606	Channel	1
22	25689	Print Knockdown and Panel Lock S.A.	1		26708	Guide Finger Shoe	20
	50115	#10-32 Hex. Nut	10		51120	#8-32 x 3/8" Rd. Hd. Sc.	40
	25690	Finger	10	48	25703	Center Dryer Band	21
	26003	Brace Assembly - Print Knockdown	1	49	25589	Bracket	2
	51220	#10-32 x 3/8" Truss Hd. Sc.	10	50	25092	Bottom Spacer Roll S.A.	2
	*16359	Rubber Bumper	2		17866	Elastic Stop Nut	1
	*25357	Print Knockdown Bracket	2		25091	Spacer Roll Assembly	1
23	25707	Air Seal	1		25090	Disc	19

Cross-Section View (continued)

BRUNING

MODEL 430

REF. NO.	PART NO.	DESCRIPTION	AMT. USED	REF. NO.	PART NO.	DESCRIPTION	AMT. USED
	25089	Spacer	20	82	26251	Tracing Feed Roll S.A.	2
	25081	Washer	1		14043	Rubber Feed Wheel	21
	25088	Washer (Large)	1		14422	Oilite Bearing	2
51	25053	Slide Assembly	4		17569	Shaft	1
52	25354	Center Panel Lock - Rear	1	83	26649	Seal	1
53	25704	Front Dryer Band	20	84	15204	Brush	1
54	25424	Mounting Angle Filter Asy.	2	85	26268	Tracing Feed Plate Assembly	1
55	25107	Band Roller	1	87	26078	Stop	2
56	26712	Dryer Shelf & Seal Asy.	1	88	26252	Tracing Feed Roll S.A.	1
	*26713	Dryer Shelf & Seal S.A.	1		14422	Oilite Bearing	2
57	26640	Blower Motor S.A.	1		17569	Shaft	1
	5929	Blower Motor	1		17571	Rubber Disc	21
	18984	Solderless Terminal	2	89	26356	Angle Brush Holder	2
	20444	Solderless Terminal	2	90	26077	Hinge Pin - Light Shield	1
58	18950	Cylinder	1	91	26762	Tracing Guard S.A.	1
59	26387	Frame Assembly	1		(See Cabinet Parts)		
	25974	Caster	4	93	26676	Tracing Tray & Brush	
60	26687	Sheave	1		Holder Assembly		1
61	14667	Drive Belt	1	94	26841	Adjustable Cylinder Guide	
62	10167	Cylinder Guide Roll S.A.	2		Roll S.A.		6
	9826	Tire	1		9731	Ball Bearing	1
	10187	Shaft	1		9826	Tire	1
	10188	Retaining Ring	1		10188	Retaining Ring	1
	9731	Ball Bearing	1		26842	Shaft	1
63	26639	Mount Assembly-Blower	1	95	26337	Angle Column L.H.-Upper	1
64	26659	Lock Assembly - L.H.	1	96	26680	Print Guide Plate	1
	*26660	Lock Assembly - R.H.	1	98	15872	Guide Clip	11
65	26373	Printer Band	21	99	26760	Print Guide Plate Extension	2
66	26637	Hook Mounting Bracket	2	100	27108	Print Guide Plate Extension	1
	*50114	#10-24 Hex. Nut	1	101	26715	Feed-Up S.A.	1
69	26563	Eyebolt	2		26716	Feed-Up Assembly	1
70	15064	Spring	2		26717	Feed-Up Bracket - L.H.	1
71	15326	Hook Screw	8		51218	#10-32 x 1/4" Truss Hd. Sc.	4
	*15327	Tension Collar Roll Slide	4		*26718	Feed-Up Bracket - R.H.	1
72	26638	Spacer Roll S.A.	1		*25823	Shoulder Screw	1
	5150	Collar	2		*25841	Shoulder Screw	1
	7289	Spacer	21	102	26723	Feed-Up Lock - L.H.	1
	9731	Ball Bearing (Double Seal)	2		*26724	Feed-Up Lock - R.H.	1
	10569	Shaft	1	103	25075	Printer Drive Roll S.A.	1
	10570	Tube	1		(S/N 594301 to 61430100)		
	21025	Disc	22		26908	Printer Drive Roll S.A.	1
	50503	#8-32 x 3/4" Skt. Hd. Cap Sc	2		(S/N 61430101 and up)		
74	26737	Front Panel S.A.	1		17866	3/4"-16 Elastic Stop Nut	1
	(See Cabinet Parts)				17870	Spacer	21
75	26642	Front Panel Support	1		26906	Printer Drive Roll Assembly	1
76	26646	Front Panel Bracket L.H.	1		25083	Printer Drive Disc	20
	*26647	Front Panel Bracket R.H.	1		26905	Knurled Disc	1
77	15269	Guide Take-Up Roll	2	104	26449	Bracket Print Tray	2
78	26321	Front Panel Clip R.H.	1		*25471	Plasti-Rivet	2
	*26322	Front Panel Clip L.H.	1	105	19120	Paper Stop Assembly	2
79	11724	Roll Stock Guide	4		(S/N 5943031 and up)		
	*12709	Thumb Screw	4	106	26719	Feed-Up Plate	1
80	26125	Stop	4		*26881	Feed-Up Plate Mtg. Bkt. L.H.	1
81	26239	Air Seal Assembly	2		*26882	Feed-Up Plate Mtg. Bkt. R.H.	1

* Order Separately

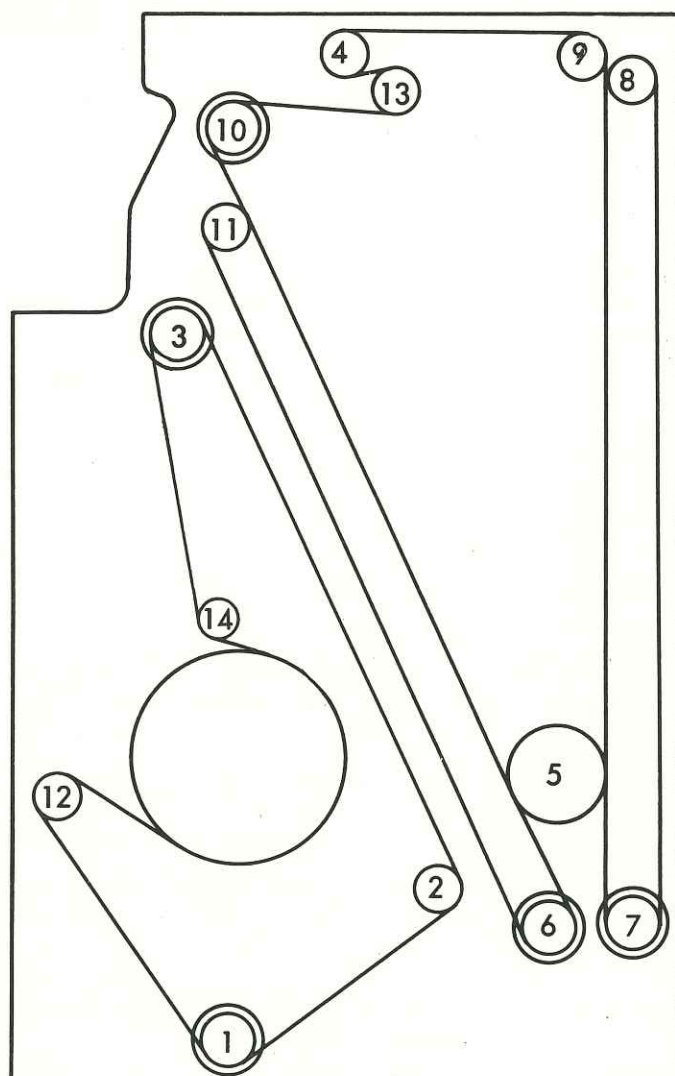


Figure 5

REF. NO.	PART NO.	DESCRIPTION
1	26638	Spacer Roll S.A.
2	25107	Band Roller
3	26908	Printer Drive Roll S.A.
4	26241	Spacer Drive Roll Assembly
5	25147	Band Roller Assembly
6	25092	Bottom Spacer Roll S.A.
7	25092	Bottom Spacer Roll S.A.

REF. NO.	PART NO.	DESCRIPTION
8	25110	Band Drive Roller Asy.
9	17877	Band Roller S.A.
10	25087	Dryer Spacer Roll S.A.
11	25296	Band Drive Roller Asy.
12	17877	Band Roller S.A.
13	25144	Tension Roll Assembly
14	26650	Band Roll Assembly

Upper Angle Column Asy. 26629

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MODEL 430

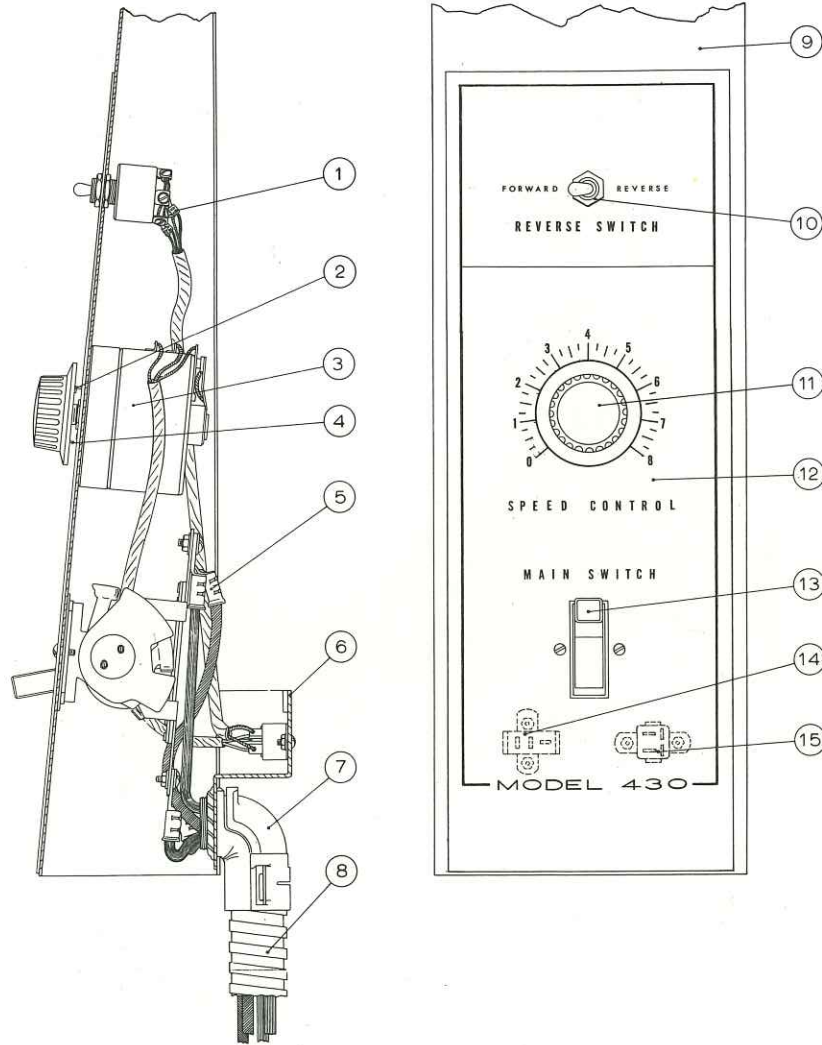


Figure 6

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	20441	Solderless Terminal	8
2	26452	Panel Bracket	1
3	18302	Variable Transformer	1
4	26451	Knob Insert	1
5	20443	Solderless Terminal	4
	*51221	#10-32 x 1/2" Oven Hd. Sc.	4
	*50015	#10 Flat S.A.E. Washer	4
	*50016	#10 Lockwasher	4
	*50115	#10-32 Hex. Nut	4
6	26633	Plug Mount	1
	*50218	#8-32 x 1/4" Fil. Hd. Sc.	3
7	10173	3/4" - 90° Connector	1
8	20353	Conduit Insuliner	1
9	26317	Upper Angle Column R.H.	1
10	11023	Reversing Switch	1

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
	*16785	Locking Lug	1
11	26635	Knob	1
12	26636	Control Face Plate	1
13	14015	Switch	1
	*51106	#6-32 x 1/4" Oven Hd. Sc.	2
14	25718	3-Prong Plug	1
	*51201	#6-32 x 5/16" Oven Hd. Sc.	2
	*50009	#6 Lockwasher	2
	*50106	#6-32 Hex. Nut	2
15	18014	4-Prong Plug	1
	*51201	#6-32 x 5/16" Oven Hd. Sc.	2
	*50106	#6-32 Hex. Nut	2
	*50009	#6 Lockwasher	2

* Order Separately

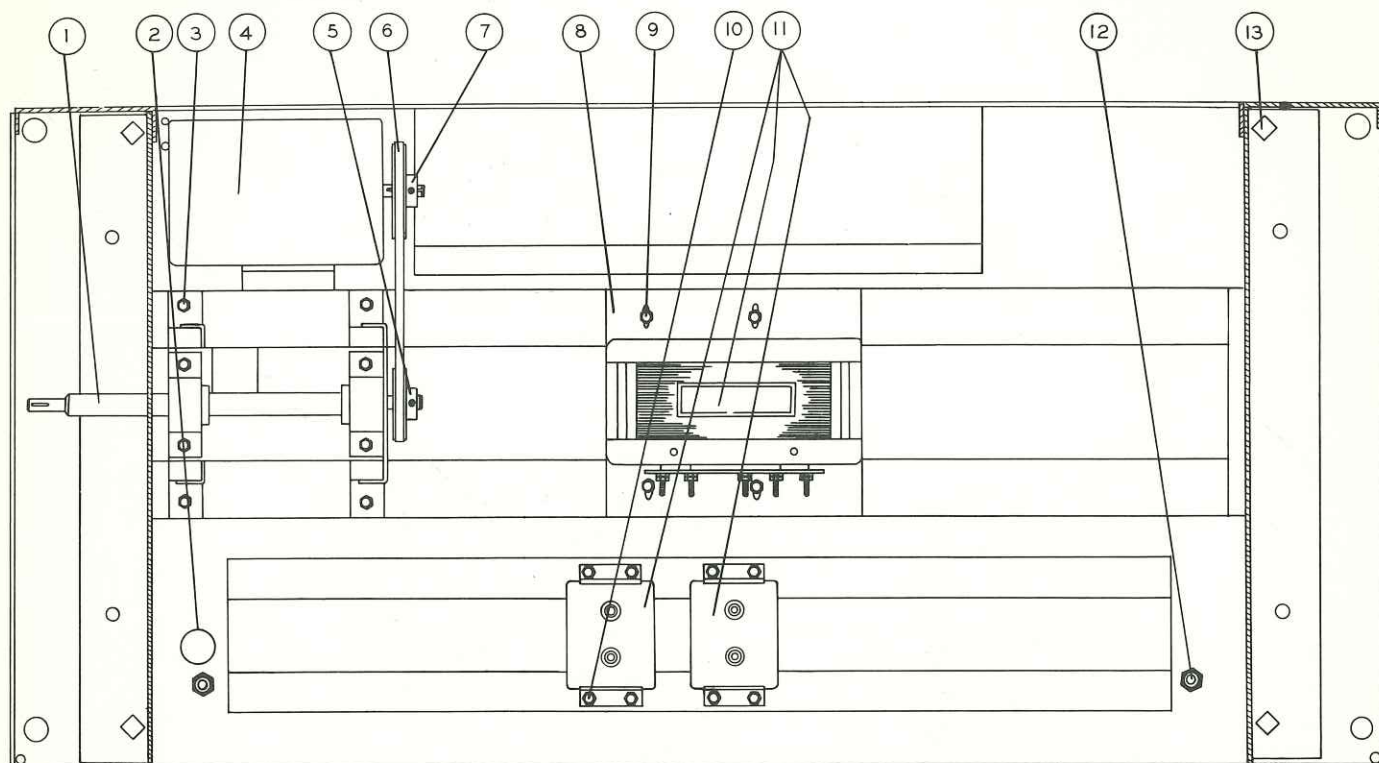


Figure 7

REF. NO.	PART NO.	DESCRIPTION	AMT. USED	REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	26639	Blower Shaft Mount Asy.	1	4	26640	Blower Motor S. A.	1
	18078	Pillow Block	2		5929	Blower Motor	1
	21724	#606 Woodruff Key	1		18984	Solderless Terminal	2
	25038	Blower Mount Assembly	1		20444	Solderless Terminal	2
	26309	Blower Wheel Shaft	1	5	25048	Sheave (Part of 26639)	1
	50032	3/8" Lockwasher	4		14667	Drive Belt	1
	50033	3/8" Burr Washer	4	7	26687	Sheave	1
	50128	3/8"-16 Hex. Nut	4	8	26480	Transformer Mount	1
	50330	3/8"-16 x 1" Hex. Hd.	4	9	16275	Elastic Stop Nut	8
		Cap Sc.	4	10	50302	1/4"-20 x 5/8" Hex. Hd.	4
	50609	1/4"-20 x 3/8" Skt. Hd.	2			Cap Sc.	1
2	25048	Sheave	1	11	26314	Lamp Control Unit	1
	17074	Plug Button	1	12	25974	Caster (Part of Frame Assembly 26387)	4
3	50327	3/8"-16 x 5/8" Hex. Hd.	4		10561	Jack Screw	4
		Cap Sc.	4				

Developer Section

MODEL 430

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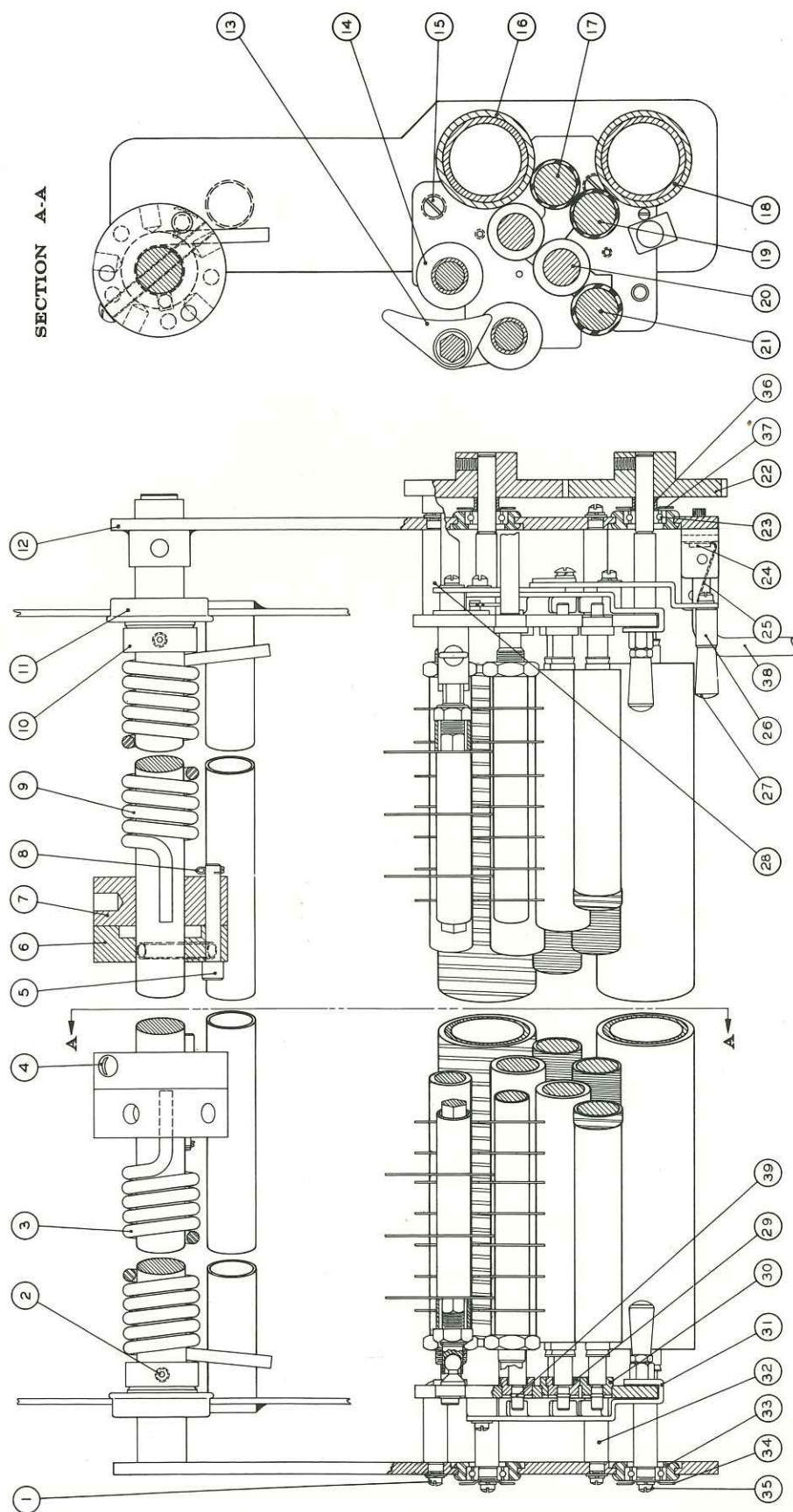


Figure 8

SYM	PART NO.	DESCRIPTION	AMT USED
15	51222	#10-32 x 5/8" Truss Hd. Sc.	4
16	25244	2.040 Dia. Grooved Developer Roll Assembly	1
17	26001	1" Applicator Roll	1
18	25245	2" Dia. Plain Dev. Roll Assembly	1
19	13000	1" Floating Roll	1
20	21339	Pressure Roll	2
21	21341	Weight Roll	1
22	21350	Spur Gear (52T.)	2
23	30303	Bearing	4
24	26944	Twin Nut	1
25	21689	Handle Spring	1
26	26107	Spacer	1
27	25513	Developer Roll Bracket Asy. - R.H. (Ser. #594401 to 61440272)	1
	27093	Developer Roll Bracket Asy. - R.H. (Ser. #61440273 and up) (See Figure 10)	1
28	25015	Spacer	2
29	21372	Bearing	6
30	21373	Bearing	2
31	25512	Developer roll brkt. asy. - L.H. (Ser. #594401 to 61440272)	1
	27092	Developer roll brkt. asy. - L.H. (Ser. #61440273 and up) (See Figure 8)	1
32	21365	Developer Roll Bracket Spacer	2
33	12899	Bearing Housing	4
34	15781	Bearing Retainer	2
35	50016	#10 Lockwasher	2
	*13561	#10-32 Stainless Steel Screw	2
36	13462	Spacer	2
37	13145	Bearing Retainer	2
38	25595	Handle Assembly	1
39	13244	Retaining Ring	8

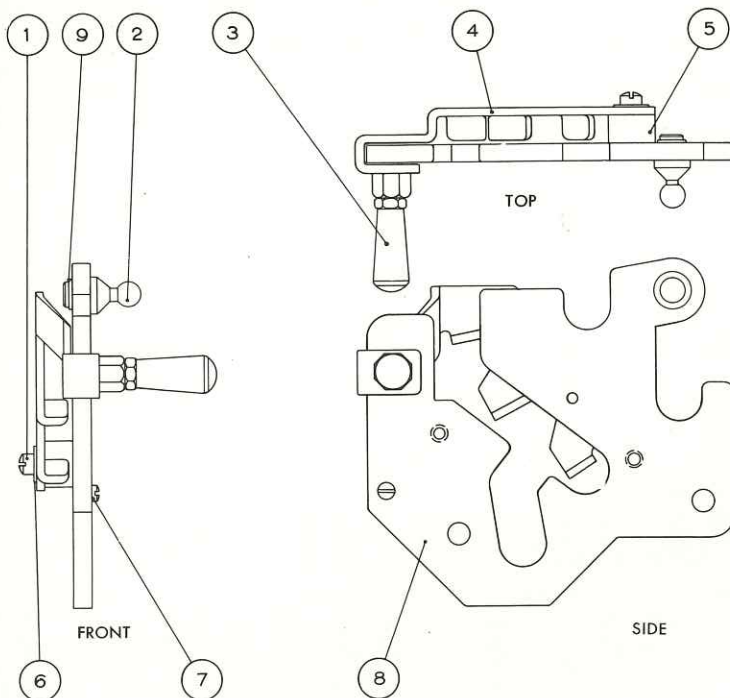
*Order separately.

SYM	PART NO.	DESCRIPTION	AMT USED
1	50240	#10-32 x 1/2" Fillister Hd. Sc.	4
	*50015	#10 Flat Washer	4
	*50016	#10 Lockwasher	4
2	50621	#5/16-24 x 5/16 Socket Hd. Sc.	1
3	25803	Torsion Spring - R.H.	1
4	51154	#5/16-18 x 2 1/2" Round Hd. Sc.	2
5	25716	Spring Pin	2
6	25714	Lock Collar	2
7	25715	Index Collar	2
8	51300	3/4" Cotter Pin	2
9	25804	Torsion Spring - L.H.	1
10	11942	Stop	2
11	17981	Ball Bearing	2
12	25330	Developer Yoke Assembly	1
	25331	Yoke Sideplate Assembly - R.H.	1
	25334	Yoke Sideplate Assembly - L.H.	1
13	26021	#6 Taper Pin	1
	25364	Guide Finger S.A. (Ser. #594401 to 61440272)	1
	27087	Guide Finger S.A. (Ser. #61440273 and up)	1
	50139	1/2"-20 Jam Nut	1
	14577	Elastic Stop Nut	1
	22327	Spacer	34
	27085	Finger	35
	13460	Spacer	2
	25857	Hex Shaft Assembly	1
14	26234	Trailing Edge Shaft Assembly	2
	25601	Bearing	2
	13460	Spacer	71
	13463	Disc	71
	27088	Self-locking Nut	1
	30304	Retaining Ring	2
	25065	Gear	1
	26235	Shaft	1
	50604	#10-32 x 3/8" Socket Hd. Sc.	1
	27197	Spacer	1

Developer Roll Bkt. Asy. L.H. 27092

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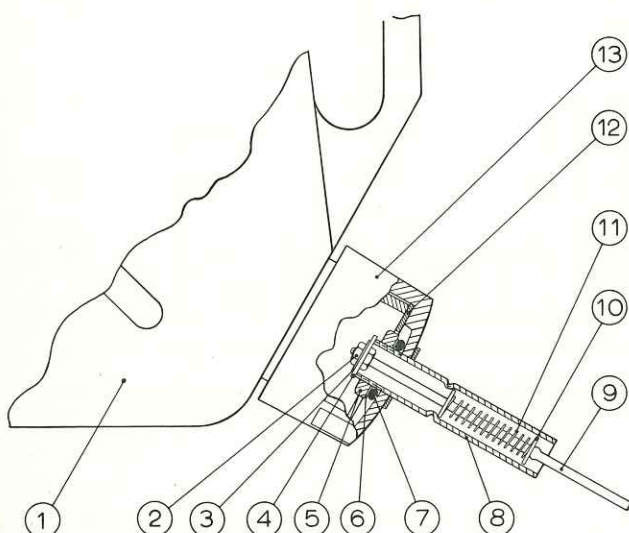
MODEL 430



SYM	PART NO.	DESCRIPTION	AMT USED
1	50242	#10-32 X 3/4" Fillister Hd. Screw	1
2	25516	Ball Stud	1
3	21335	Lock Assembly	1
	21367	Housing	1
	21368	Spring	1
	21369	Plunger	1
	14400	Handle	1
	50115	#10-32 Hex Nut	1
4	21375	Roll Latch - L.H.	1
5	21376	Pivot bushing	1
6	50015	#10 - Flat Washer	1
7	50205	#6-32 X 1/4" Fillister Hd. Screw	1
8	27084	Developer Roll Brkt.	1
9	30304	Retaining Ring	1

Figure 9

Bottle & Valve Asy. 26275



SYM	PART NO.	DESCRIPTION	AMT USED
1	26867	Developer bottle assembly	1
2	*14874	Hex. nut	2
3	*14875	Washer	1
4	*14870	Valve	1
5	*26276	5/8"-18 Nut	1
6	*21067	Disc	1
7	*16304	Rubber ring	1
8	*26277	Valve tube assembly	1
9	*26278	Valve rod	1
10	*9932	Valve rod flange	2
11	*14873	Valve spring	1
12	*26752	Washer	1
13	*26866	Developer cap	1

Figure 10

*Denotes part of #26868 Valve Assembly

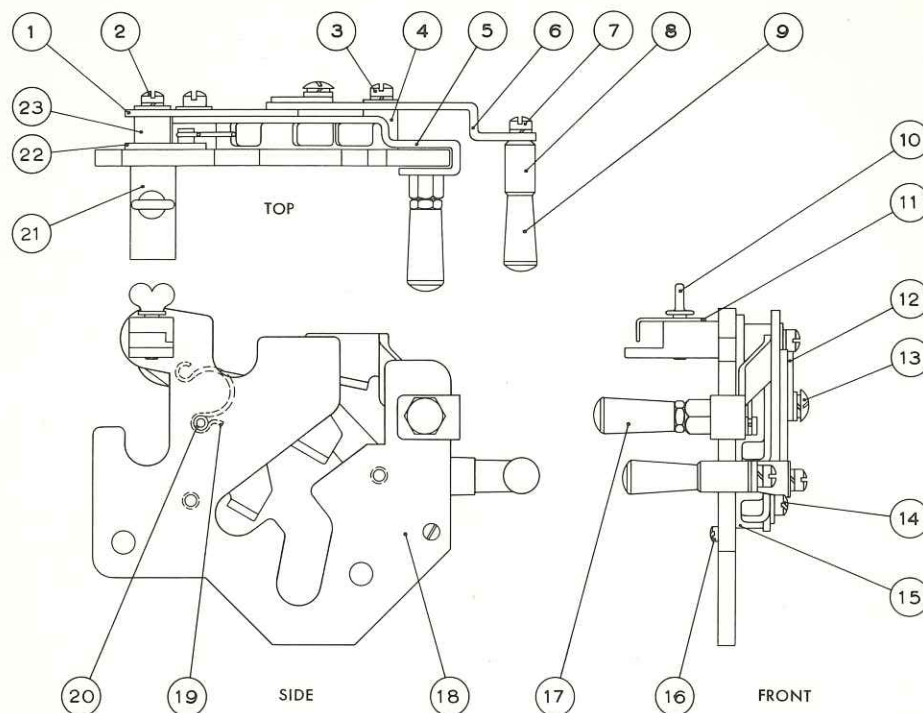


Figure 11

SYM	PART NO.	DESCRIPTION	AMT USED	SYM	PART NO.	DESCRIPTION	AMT USED
1	27086	Lever Assembly	1		*50015	#10 Flat Washer	1
2	50239	#10-32 X 3/8" Long Fillister Head Screw	1		*50016	#10 Lockwasher	1
	*50015	#10 Flat Washer	1	14	50242	#10-32 X 3/4" Long Fillister Head Screw	1
	*50016	#10 Lockwasher	1		*50015	#10 Flat Washer	1
3	50244	#10-32 X 1" Long Fillister Head Screw	1	15	21376	Pivot Bushing	1
	*50015	#10 Flat Washer	1	16	50205	#6-32 X 1/4" Long Fillister Head Screw	1
	*50016	#10 Lockwasher	1	17	21335	Lock Assembly	1
4	25525	Spacer	1		21367	Housing	1
5	21374	Roll Latch - R.H.	1		21368	Spring	1
6	27101	Lever Arm	1		21369	Plunger	1
7	50245	#10-32 X 1 1/8" Long Fillister Head Screw	1		14400	Handle	1
	*50015	#10 Flat Washer	1		50115	#10-32 Hex Nut	1
	*50016	#10 Lock Washer	1	18	27084	Developer Roll Bracket	1
8	26107	Spacer	1	19	25519	Spring	1
9	14400	Handle	1	20	25520	Spring Stud	1
10	25518	Thumb Screw	1	21	25515	Shaft Holder	1
11	25530	Lock	1	22	25521	Spring Lever Assembly	1
12	26116	Pivot Plate	1	23	25517	Spacer	1
13	51219	#10-32 X 5/16" Long Truss Head Screw	1				

*Order separately.

Duct Assembly • 26658

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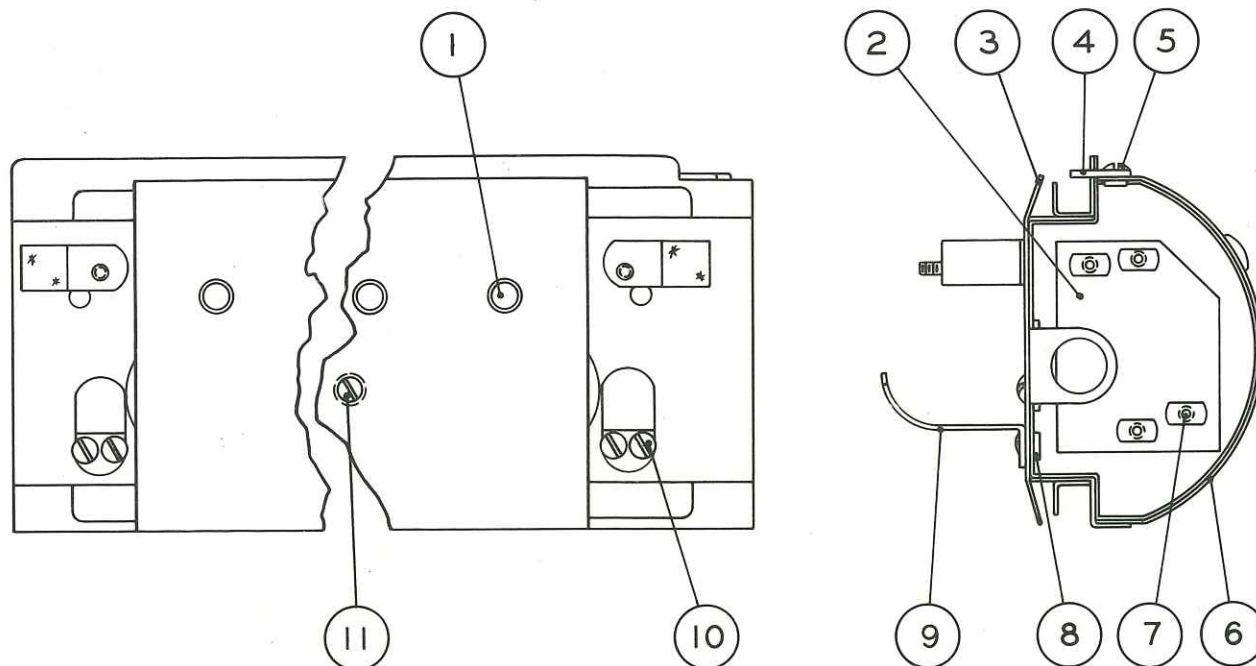
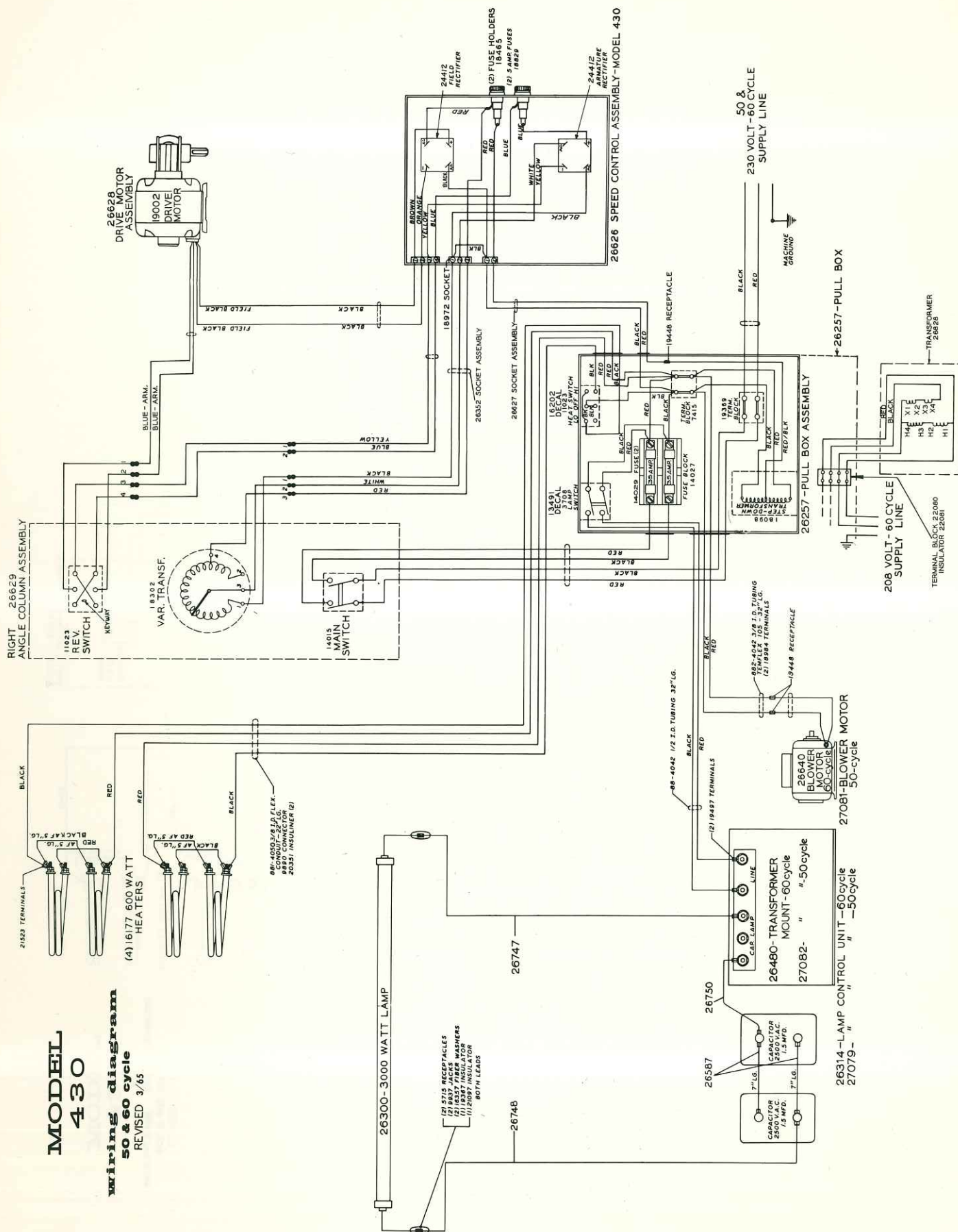


Figure 12

REF. NO.	PART NO.	DESCRIPTION	AMT. USED
1	13422	Plug Button	21
2	26641	Duct and Housing Seal	1
3	26435	Reflector	1
4	26357	Duct Stop	1
5	51219	#10-32 x 5/16" Truss Hd.Sc	4
	*50015	#10 Flat Washer	3
6	26430	Duct Assembly	1
7	50237	#10-32 x 5/16 Truss Hd.Sc.	2
8	26014	Twin Nut	2
9	26434	Lamp Support Bracket	2
10	50016	#10 Lockwasher	4
11	25488	Shoulder Spacer	2
	*51218	#10-32 x 1/4" Truss Hd.Sc.	3

*Order Separately

wiring diagram
50 & 60 cycle
REVISED 3/65



Accessories

MODEL 430

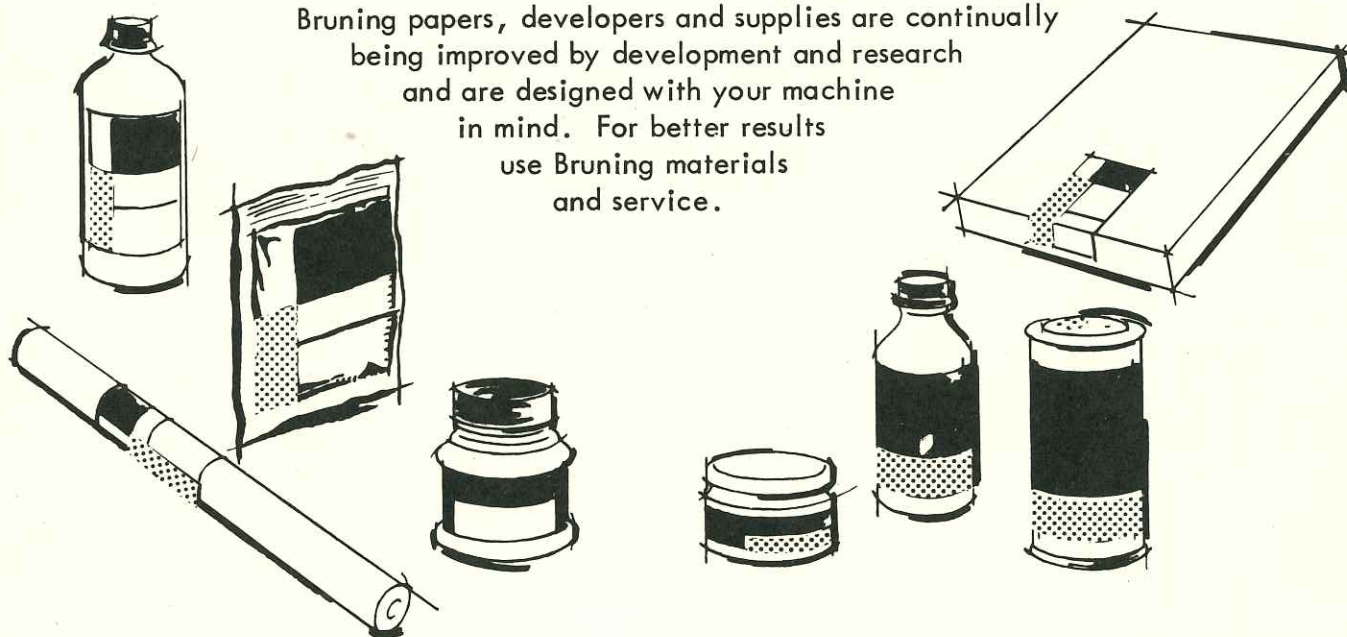
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The following tools and accessories are furnished with the machine:

2049	Funnel	16100	Duster
5903	Allen Wrench Set	16101	Duster Head
13000	Floating Roll	17104	Stirring Rod
13612	Idler Wrench Assembly	19311	Measuring Cup
14813	Stopper Assembly	21578	Squeegee Assembly
14817	Utility Bottle	25294	Spanner Wrench

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